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EOSDIS Core System Project

ECS Project Training Material
Volume 8: Ingest

March 1999

Raytheon Systems Company
Upper Marlboro, Maryland

ECS Project Training Material
Volume 8: Ingest

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RESPONSIBLE ENGINEER

Ralph E. Fuller /s/ 3/22/99

Ralph E. Fuller Date
EOSDIS Core System Project

SUBMITTED BY

Thomas J. Hickey /s/ 3/22/99

Tom Hickey, M&O Manager Date
EOSDIS Core System Project

Raytheon Systems Company
Upper Marlboro, Maryland

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Preface

This document is a contract deliverable with an approval code of 3. As such, it does not require formal Government approval. This document is delivered for information only, but is subject to approval as meeting contractual requirements.

Any questions should be addressed to:

Data Management Office
The ECS Project Office
Raytheon Systems Company
1616 McCormick Dr.
Upper Marlboro, MD 20774-5301

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Abstract

This is Volume 8 of a series of lessons containing the training material for Release 4 of the Earth Observing System Data and Information System (EOSDIS) Core System (ECS). This lesson provides a detailed description of the process for receiving, logging, and marking all non-electronic media for processing and storage in the ECS system. Methods for monitoring performance of data requests, managing/processing ingest data, and ingesting hard media/metadata are also reviewed.

***Keywords**:* training, instructional design, course objective, Ingest

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Introduction

Identification

Training Material Volume 8 is part of Contract Data Requirements List (CDRL) Item 129, whose requirements are specified in Data Item Description (DID) 625/OP3 and is a required deliverable under the Earth Observing System Data and Information System (EOSDIS) Core System (ECS), Contract (NAS5-6000).

Scope

Training Material Volume 8 describes the process and procedures for ingest of data into ECS. This lesson is designed to provide the operations staff with sufficient knowledge and information to satisfy all lesson objectives.

Purpose

The purpose of this Student Guide is to provide a detailed course of instruction that forms the basis for understanding Ingest. Lesson objectives are developed and will be used to guide the flow of instruction for this lesson. The lesson objectives will serve as the basis for verifying that all lesson topics are contained within this Student Guide and slide presentation material.

Status and Schedule

This lesson module provides detailed information about training for Release 4. Subsequent revisions will be submitted as needed.

Organization

This document is organized as follows:

Introduction:	The Introduction presents the document identification, scope, purpose, and organization.
Related Documentation:	Related Documentation identifies parent, applicable and information documents associated with this document.
Student Guide:	The Student Guide identifies the core elements of this lesson. All Lesson Objectives and associated topics are included.
Slide Presentation:	Slide Presentation is reserved for all slides used by the instructor during the presentation of this lesson.

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Related Documentation

Parent Document

The parent document is the document from which this ECS Training Material's scope and content are derived.

423-41-01	Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work

Applicable Documents

The following documents are referenced within this ECS Training Material, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this document:

420-05-03	Goddard Space Flight Center, Earth Observing System (EOS) Performance Assurance Requirements for the EOSDIS Core System (ECS)
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)

Information Documents

Information Documents Referenced

The following documents are referenced herein and amplify or clarify the information presented in this document. These documents are not binding on the content of the ECS Training Material.

609-CD-003	Operations Tools Manual for the ECS Project
611-CD-004	Mission Operation Procedures for the ECS Project
535-TIP-CPT-001	Goddard Space Flight Center, Mission Operations and Data Systems Directorate (MO&DSD) Technical Information Program Networks Technical Training Facility, Contractor-Provided Training Specification

Information Documents Not Referenced

The following documents, although not referenced herein and/or not directly applicable, do amplify or clarify the information presented in this document. These documents are not binding on the content of the ECS Training Material.

220-TP-001	Operations Scenarios - ECS Release B.0 Impacts, Technical Paper for the ECS Project
305-CD-020	Release B SDPS/CSMS System Design Specification Overview for the ECS Project
305-CD-021	Release B SDPS Client Subsystem Design Specification for the ECS Project
305-CD-022	Release B SDPS Interoperability Subsystem Design Specification for the ECS Project
305-CD-023	Release B SDPS Data Management Subsystem Design Specification for the ECS Project
305-CD-024	Release B SDPS Data Server Subsystem Design Specification for the ECS Project
305-CD-025	Release B SDPS Ingest Subsystem Design Specification for the ECS Project
305-CD-026	Release B SDPS Planning Subsystem Design Specification for the ECS Project
305-CD-027	Release B SDPS Data Processing Subsystem Design Specification for the ECS Project
305-CD-028	Release B CSMS Communications Subsystem Design Specification for the ECS Project
305-CD-029	Release B CSMS System Management Subsystem Design Specification for the ECS Project
305-CD-030	Release B GSFC DAAC Design Specification for the ECS Project
305-CD-031	Release B Langley DAAC Design Specification for the ECS Project
305-CD-033	Release B EDC DAAC Design Specification for the ECS Project
305-CD-034	Release B ASF DAAC Design Specification for the ECS Project
305-CD-035	Release B NSIDC DAAC Design Specification for the ECS Project
305-CD-036	Release B JPL PO.DAAC Design Specification for the ECS Project
305-CD-037	Release B ORNL DAAC Design Specification for the ECS Project
305-CD-038	Release B System Monitoring and Coordination Center Design Specification for the ECS Project
305-CD-039	Release B Data Dictionary Subsystem Design Specification for the ECS Project
601-CD-001	Maintenance and Operations Management Plan for the ECS Project

604-CD-001	Operations Concept for the ECS Project: Part 1-- ECS Overview
604-CD-002	Operations Concept for the ECS Project: Part 2B -- ECS Release B
605-CD-002	Release B SDPS/CSMS Operations Scenarios for the ECS Project
607-CD-001	ECS Maintenance and Operations Position Descriptions
500-1002	Goddard Space Flight Center, Network and Mission Operations Support (NMOS) Certification Program, 1/90

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Ingest Overview

Lesson Overview

This lesson provides you with the process for Ingest status monitoring, use of Ingest operator tools, and Ingest processing. It provides practical experience in using the tools you need for monitoring the ingest history log, monitoring/controlling ingest requests, setting ingest parameters, and managing ingest processing.

Lesson Objectives

Overall Objective - The overall objective of this lesson is for Maintenance and Operations (M&O) personnel to develop proficiency in the procedures that apply to data ingest in the Earth Observing System Data and Information System (EOSDIS) Core System (ECS).

Condition - The student will be given a workstation console with access to ECS ingest graphical user interface (GUI) tools, a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will use the tools to perform ingest in accordance with the prescribed procedures without error.

Specific Objective 1 - The student will describe the ingest function, providing a general statement of the ingest responsibility in ECS and an overview of the ingest process.

Condition - The student will be given a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will correctly state the ingest role in ECS, state at least three (3) ingest activities, identify four (4) types of ingest automated messages, identify five (5) categories of ingest, and identify at least two (2) types of data transfer for ingest.

Specific Objective 2 - The student will perform the steps involved in launching the Ingest GUI.

Condition - The student will be given a statement of the requirements for launching the Ingest GUI, access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project.*

Standard - The student will perform without error the steps involved in launching the Ingest GUI in accordance with the applicable procedure.

Specific Objective 3 - The student will perform the steps involved in monitoring/controlling ingest requests, including suspending/resuming ingest requests and canceling ingest requests.

Condition - The student will be given a statement of the requirements for monitoring/controlling ingest requests (including the identification of a request by date and/or external data provider), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project.*

Standard - The student will perform without error the steps involved in monitoring/controlling ingest requests using the Ingest GUI Monitor/Control screen in accordance with the applicable procedure.

Specific Objective 4 - The student will perform the steps involved in viewing the ingest history log using the Ingest GUI History Log screen.

Condition - The student will be given a statement of the requirements for viewing the ingest history log (including the identification of a specific request to be viewed), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will perform without error the steps involved in viewing the ingest history log using the Ingest GUI History Log screen in accordance with the applicable procedure.

Specific Objective 5 - The student will perform the steps involved in verifying the archiving of ingested data.

Condition - The student will be given a statement of the requirements for verifying the archiving of ingested data and access to the File and Storage Management System (FSMS) (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will perform without error the steps involved in verifying the archiving of ingested data in accordance with the applicable procedure.

Specific Objective 6 - The student will perform the steps involved in cleaning the polling directories.

Condition - The student will be given a statement of the requirements for cleaning the polling directories and access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project.*

Standard - The student will perform without error the steps involved in cleaning the polling directories in accordance with the applicable procedure.

Specific Objective 7 - The student will perform the steps involved in performing hard media ingest from an 8mm and/or D3 tape cartridge.

Condition - The student will be given a statement of the requirements for performing hard media ingest from an 8mm and/or D3 tape cartridge, a tape cartridge containing data to be ingested, access to an appropriate tape drive, and access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project.*

Standard - The student will perform without error the steps involved in performing hard media ingest from an 8mm and/or D3 tape cartridge in accordance with the applicable procedure.

Specific Objective 8 - The student will perform the steps involved in scanning a document and checking the file resulting from scanning to verify that the scanning has been accomplished properly.

Condition - The student will be given a statement of the requirements for scanning a document and checking the file resulting from scanning to verify that the scanning has been accomplished properly, a document to be scanned, access to the scanning equipment and software, a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project.*

Standard - The student will perform without error (in accordance with the applicable procedure) the steps involved in scanning a document and checking the file resulting from scanning to verify that the scanning has been accomplished properly.

Specific Objective 9 - The student will perform the steps involved in modifying external data provider information using the Ingest GUI Operator Tools: Modify External Data Provider/User Information screen.

Condition - The student will be given a statement of the requirements for modifying external data provider information (including the information to be modified), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will perform without error the steps involved in modifying external data provider information using the Ingest GUI Operator Tools: Modify External Data Provider/User Information screen in accordance with the applicable procedure.

Specific Objective 10 - The student will perform the steps involved in modifying Ingest Subsystem parameters using the Ingest GUI Operator Tools: Modify System Parameters screen.

Condition - The student will be given a statement of the requirements for modifying Ingest Subsystem parameters (including the parameter data to be modified), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will perform without error the steps involved in modifying Ingest Subsystem parameters using the Ingest GUI Operator Tools: Modify System Parameters screen in accordance with the applicable procedure.

Specific Objective 11 - The student will perform the steps involved in transferring files using the Ingest GUI Operator Tools: File Transfer screen.

Condition - The student will be given a statement of the requirements for transferring files (including the identification of files to be transferred), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will perform without error the steps involved in transferring files using the Ingest GUI Operator Tools: File Transfer screen in accordance with the applicable procedure.

Specific Objective 12 - The student will perform the steps involved in troubleshooting and recovering from ingest problems.

Condition - The student will be given a statement of the requirements for troubleshooting and recovering from ingest problems (including a specific failure to troubleshoot), access to the Ingest Subsystem (through a workstation or X terminal), a copy of 609-CD-003-002, *Version 2.0 Operations Tools Manual for the ECS Project*, and a copy of 611-CD-004-003, *Mission Operation Procedures for the ECS Project*.

Standard - The student will perform without error the steps involved in troubleshooting and recovering from ingest problems in accordance with the applicable procedure.

Importance

This lesson provides students who will be Ingest/Distribution Technicians at the Distributed Active Archive Centers (DAACs) with the knowledge and skills needed for effective ingest of ECS data. It ensures development of operational capability that optimizes ingest performance to realize the potential for reliability, availability, maintainability, and security in data receipt and placement in the storage hierarchy. It provides thorough preparation for the following Ingest functions (among others):

- Automated network ingest.
- Polling ingest.
- Monitoring/controlling ingest request processing.
- Hard media ingest.
- Adjusting ingest tunable parameters.
- Troubleshooting and recovering from ingest problems.

Ingest Concepts

ECS Context

Ingest for ECS is accomplished at the Distributed Active Archive Centers (DAACs). The people involved in Ingest activities are Ingest/Distribution Technicians.

The ECS Context Diagram (Figure 1) shows the relationships among subsystems within the Science Data Processing component of ECS. The Ingest Subsystem (INS) is the point of entry to ECS for data from external data providers. The Data Server Subsystem (DSS) manages access to the data repositories, where ingested data are stored. Of course, the context diagram shows a generalized (high-level) view of ECS. The Ingest architecture diagram (Figure 2) focuses on the Ingest process and its relationships with other subsystems. The Storage Management (STMGT) and Science Data Server (SDSRV) architecture diagrams (Figures 2 and 3 respectively) focus on those two individual computer software configuration items (CSCIs) of the Data Server Subsystem and their relationships with each other and with other subsystems.

- Ingest (Figure 2) transfers data into ECS, performs preprocessing, and forwards the data to DSS for archiving.
- Storage Management (Figure 3) stores, manages, and retrieves data files on behalf of other parts of the Science Data Processing component.
- Science Data Server (Figure 4) manages and provides user access to collections of non-document Earth Science data.

Ingest Subsystem

The Ingest Subsystem is the part of the ECS Science Data Processing component that the Ingest/Distribution Technician uses when getting data from external data providers into ECS. The Ingest/Distribution Technician has access to Ingest primarily through the ECS Ingest graphical user interface (GUI).

The Ingest Subsystem is composed of just one CSCI; i.e., INS. The subsystem has the following major components as shown in Figure 2:

- Automated Network Ingest Interface (EcInAuto).
  - Server that provides basic capability to ingest data electronically from an external source.
- Polling Ingest Client Interface (EcInPolling).
  - Clients that create polling requests, detect new files in a specified external location, create and submit Ingest requests.

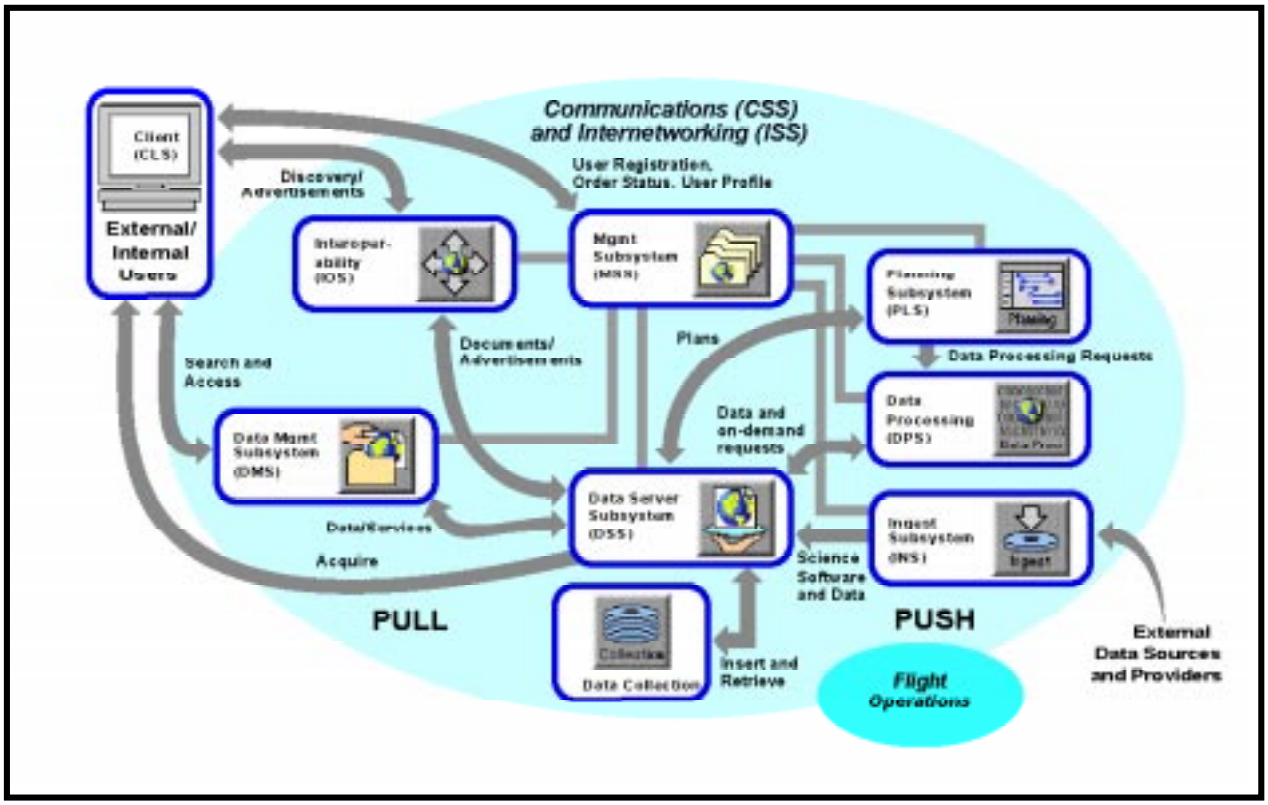

Figure 1. ECS Context Diagram

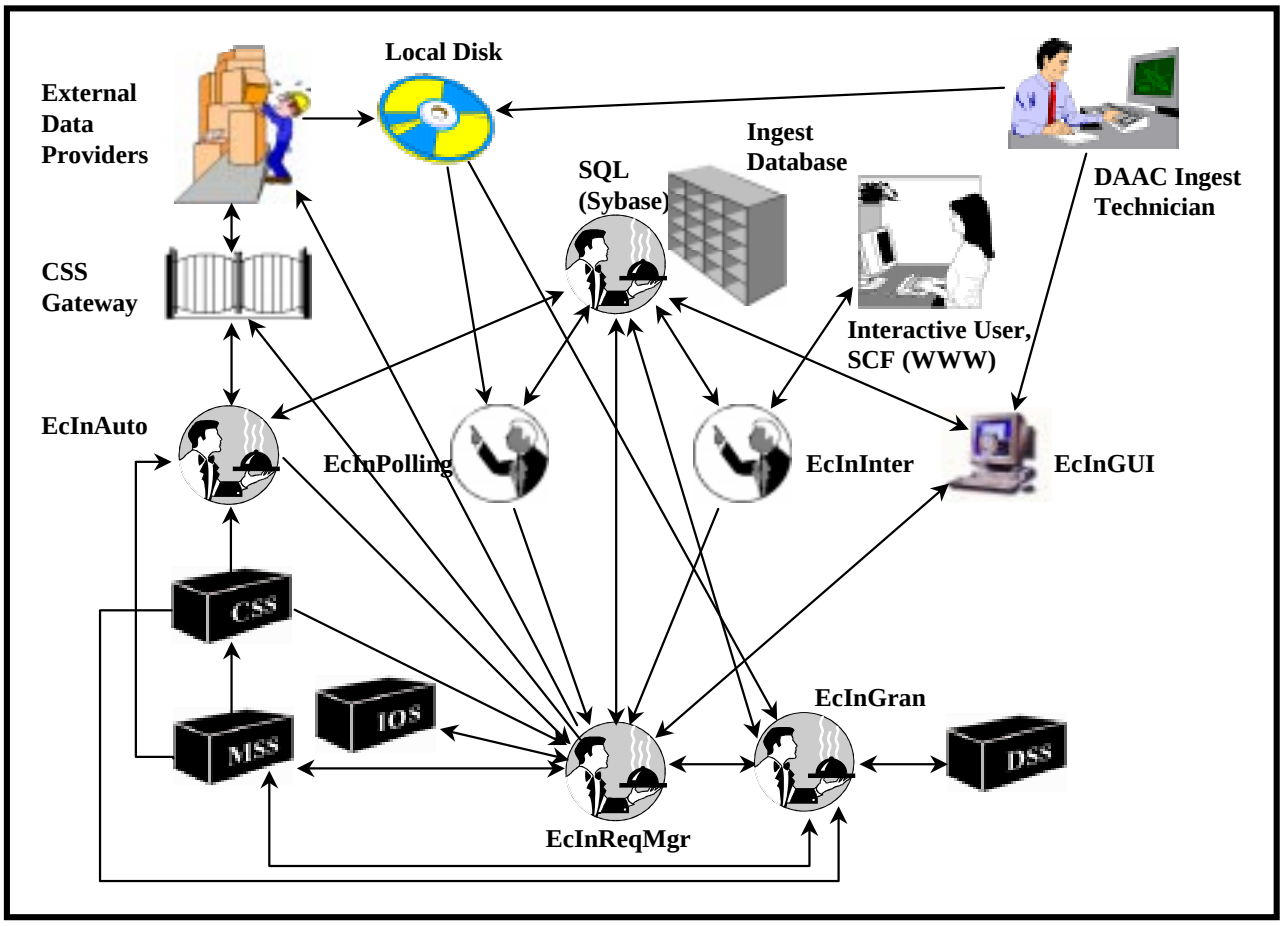

Figure 2. Ingest Subsystem (INS) Architecture Diagram

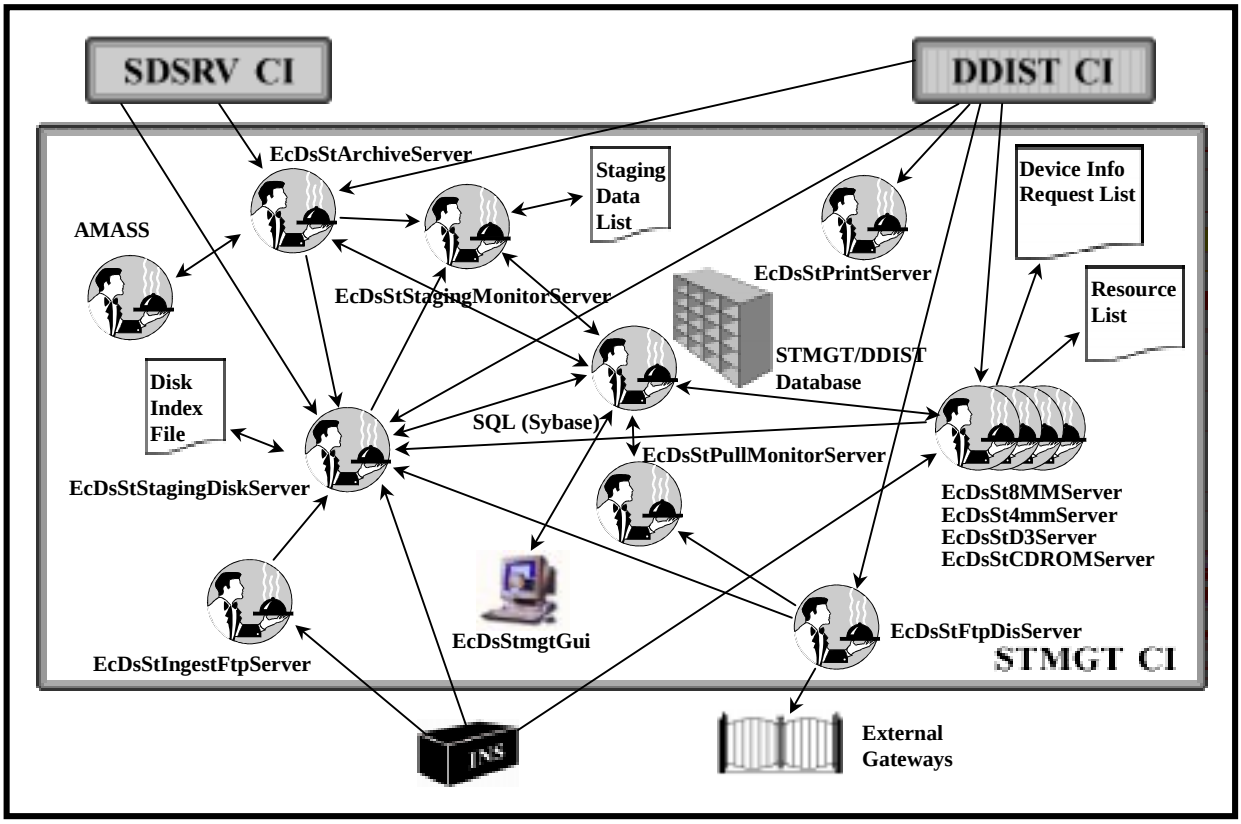

Figure 3. Storage Management (STMGT) CSCI Architecture

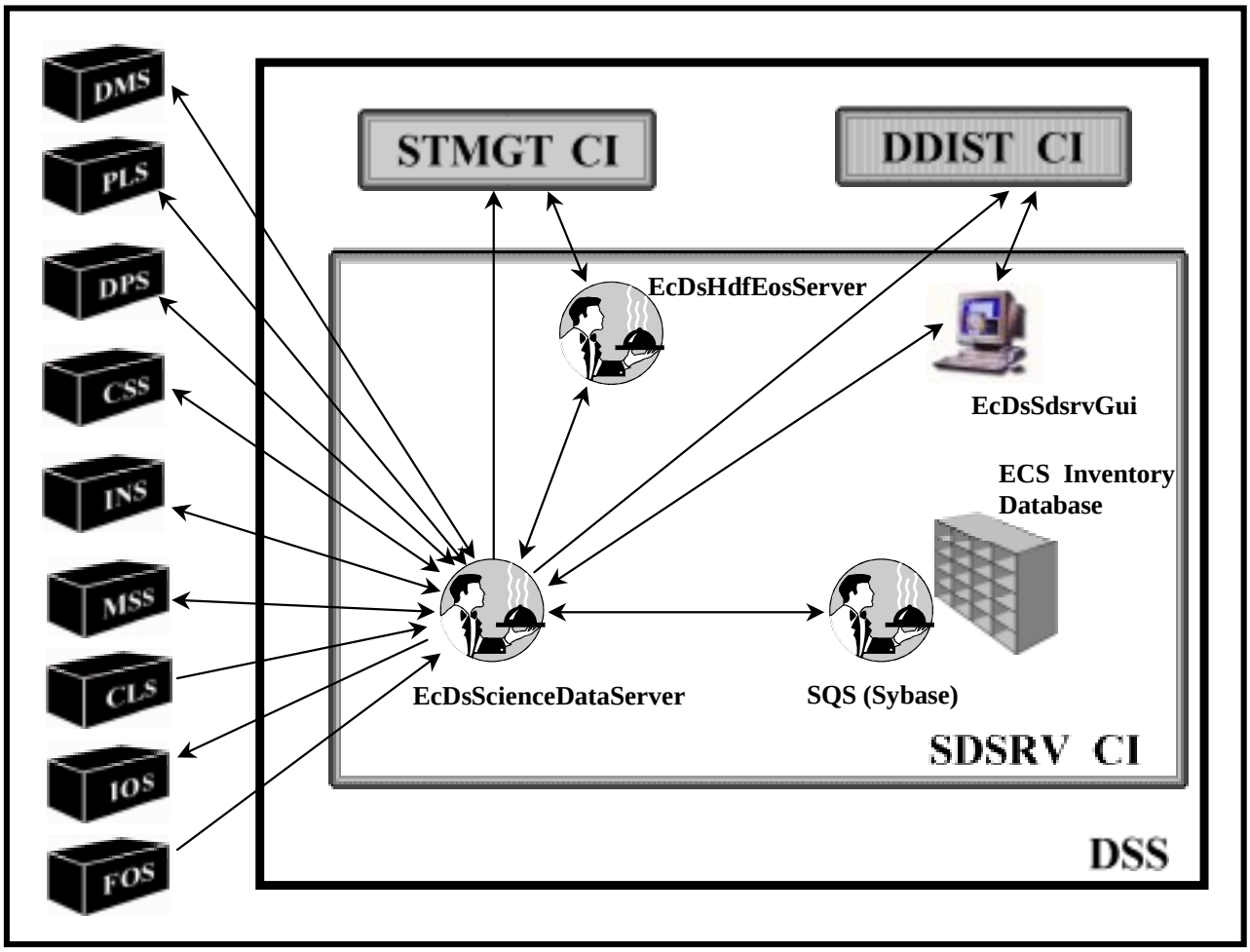

Figure 4. Science Data Server (SDSRV) CSCI Architecture

- Interactive Ingest Interface (EcInInter).
  - Server that provides science users and ECS operators the capability for interactive request to ingest data available on the network.
- Ingest Request Manager (EcInReqMgr).
  - Server that manages Ingest request traffic and processing.
- Ingest Granule Server (EcInGran).
  - Server that provides services for required preprocessing of data and subsequent insertion into the Data Server Subsystem.

- ECS Ingest GUI (EcInGUI).
  - GUI that provides the Ingest/Distribution Technician with the capability to perform physical media ingest; monitor the Ingest history log; monitor the status of ongoing ingest requests; initiate or cancel an Ingest request and modify Ingest configuration parameters.
- Sybase Structured Query Language (SQL) Server.
  - Commercial off-the-shelf (COTS) software application that stores and provides access to Ingest Subsystem internal data; i.e., the Ingest operations databases.

Storage Management (STMGT)

The Data Server Subsystem STMGT CSCI manages all physical storage resources for all DSS components including the following items:

- Tape robotic archive.
- Random Array of Inexpensive Disks (RAID) disk cache.
- On-line storage.
- Peripheral devices (e.g., various types of magnetic tape drives) used for ingesting and distributing data.

During data ingest, STMGT provides interfaces, which allow Ingest to obtain access to disk space, file transfer protocol (ftp) services, and peripheral devices (e.g., tape drives) which are shared resources. STMGT archive code provides for the copying of files into the archive for permanent storage.

STMGT has the following major components (as shown in Figure 3):

- Archive Server (EcDsStArchiveServer).
  - Server that provides access to stored data.
  - There can be multiple archive servers running at a given site, each with its own type of data or storage medium.
- Staging Servers.
  - Staging Monitor Server (EcDsStStagingMonitorServer) - Server that manages a group of data files that have been retrieved from the archive and placed into a cache area on staging disk; it maintains a list of the data files so that subsequent data retrieval requests are fulfilled immediately without requiring an additional archive access.
  - Staging Disk Server (EcDsStStagingDiskServer) - Server that manages shared disk space; it allows clients to allocate disk space and reserve files between staging directories and from non-staging to staging directories.

- Resource Managers.
  - 8mm Server (EcDsSt8MMServer) - Server that schedules access to the 8mm cartridge tape drives shared between Ingest and Data Distribution; maintains a request queue based on priority and time of request receipt.
  - D3 Server (EcDsStD3Server) - Server that schedules access to the D3 cartridge tape drive(s); maintains a request queue.
  - Ingest FTP Server (EcDsStIngestFtpServer) - Server that schedules access for Ingest file transfer protocol (ftp); maintains a request queue.
  - FTP Distribution Server (EcDsStFtpDisServer) - Server that schedules access for distribution ftp; maintains a request queue.
  - Print Server (EcDsStPrintServer) - Server that manages printing out packing list files associated with distribution requests.
- Pull Monitor Server (EcDsStPullMonitorServer).
  - Server that manages the files in the user pull area; deletes files as they are either retrieved (i.e., electronically pulled) from the user pull area or become stale (when their time-out periods expire).
- Storage Management GUI (EcDsStmgtGui).
  - GUI to the database; allows the technician to set parameters and configurations that control the STMGT servers.
- Sybase SQL Server.
  - COTS software application that handles insertion and retrieval of data concerning storage management activities into/from the STMGT database.
- Archival Management and Storage System (AMASS).
  - COTS software application that supports the functioning of the data repository hardware (e.g., archive robotics).

Science Data Server (SDSRV)

The SDSRV CSCI is the part of the Data Server Subsystem that issues requests to the STMGT and Data Distribution (DDIST) CSCIs to perform storage and distribution services in support of the processing of service requests, such as insertion of data into the archive or distribution of data products from the archive. The Ingest/Distribution Technician can gain access to SDSRV through the Science Data Server GUI if necessary.

SDSRV has the following major components (as shown in Figure 4):

- Science Data Server (EcDsScienceDataServer).

— Server responsible for managing collections of Earth Science and related data, and for servicing requests for the storage, search, retrieval, and manipulation of data within those collections.

- Hierarchical Data Format (HDF) EOS Server (EcDsHdfEosServer).

  — Server that provides science data subsetting capabilities for Earth Science data that have been configured with a subsetting service.

- Science Data Server GUI (EcDsSdSrvGui).

  — GUI that allows the operator to monitor active EcDsScienceDataServer requests and receive descriptor files and dynamic link libraries (dll) for configuring Earth Science Data Types (ESDTs) in the EcDsScienceDataServer.

- Sybase Spatial Query Server (SQS).

  — COTS software application that provides the ability to store and search spatial metadata in the ECS Inventory and Configuration data store, which contains ESDT configuration information and the data catalog for all the archived products found at the DAAC.

The Ingest Process

The Ingest function is characterized by a collection of hardware and software that supports receiving data and transferring it to the appropriate ECS repositories on either a routine or ad hoc basis. Data to be ingested may be of several types including:

- Science data.
- Science software packages.

Ingest triggers subsequent archiving of the data and may activate a trigger for data processing (e.g., if there are subscriptions for the data being ingested).

- Flexibility supports various data formats and structures, external interfaces, and ad-hoc ingest tasks.
- Software offers tools from which to configure those required for a specific situation.
- Software configuration is called an *ingest client*.
  - Single interface point for receipt of all external data to be archived within the Science Data Processing component of ECS.
  - Client performs ingest data preprocessing, metadata extraction, and metadata validation on any incoming data, as required.

Ingest is one of the responsibilities of DAAC Ingest/Distribution Technicians. They monitor automated ingest and set up ingest from hard media (e.g., tape cartridges).

Ingest Activities

The Ingest function brings data into ECS from external data providers. The following data providers are representative:

- Landsat Processing System (LPS).
- Landsat 7 Image Assessment System (IAS).
- EOS Data and Operations System (EDOS).
- Science Computing Facilities (SCFs).
- National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite, Data, and Information Service (NESDIS).
  - Central Environmental Satellite Computer System (CEMSCS) data.
  - National Climatic Data Center (NCDC) data.
- NOAA National Centers for Environmental Prediction (NCEP).

Ingest includes the following activities:

- Data transfer and transmission checking.
- Data preprocessing (including data conversions if required).
- Metadata extraction (as required)
- Metadata validation (as required).
- Transferring ingested data to the Data Server Subsystem for long-term storage.

Ingest provides a single point of monitoring and control of data received from data providers outside the DAAC. The nominal ingest process is fully automated, with minimal operator intervention.

Ingest Categories

Ingest supports a wide variety of external interfaces. Different interfaces may use different protocols for data transfer, which is why there are different ingest clients. However, there are some common characteristics that permit categorizing the interfaces:

- Automated network ingest.
  - Used at Earth Resources Observation Systems (EROS) Data Center (EDC) only
  - Data provider is the Landsat Processing System (LPS).
  - Data Availability Notice (DAN) from LPS initiates ingest.
  - ECS “gets” data from an LPS processor staging area via ftp, within a specified time window.

- Polling ingest.
  - With delivery record.
    - ECS periodically checks a network location for a delivery record file, which indicates the availability of data for ingest.
    - ECS "gets" data (within a specified time window) from the applicable directory on an ECS staging server, where the data provider will have put the data.
    - Data providers include EDOS, IAS, SCFs, and NOAA NCEP.
  - Without delivery record.
    - ECS periodically checks a network location for available data.
    - All data at the location are treated as one specific data type, one file per granule.
    - ECS "gets" data from the network location, within a system-tunable time period.
    - Once retrieved, the file is compared with the last version that was ingested. If the new file is different from the previous one, it is ingested as a new file. If it is identical to the previous one, it is not ingested.
    - Data providers include NOAA NESDIS CEMSCS.
- Hard media ingest by the Ingest/Distribution Technician.
  - Ingest from hard media (e.g., tape cartridges); from authorized institutions or other providers, or as backup to other types of ingest (e.g., polling).
  - Manual transfer requires file/record information equivalent to DAN/PDR, either furnished by the data provider or constructed by the Ingest/Distribution Technician.
  - Data providers include SCFs, NOAA NESDIS NCDC, and the Ground Data System (GDS) for the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) instrument on the AM-1 satellite.
- Interactive Ingest.
  - Manual data transfer by authorized science data providers using an HTML form.
  - Data provider must furnish a DAN.
  - Interactive Ingest is not a feature of Drop 4; it will be included in Drop 5.

Ingest Automated Messages

As illustrated in Figure 5, there are four types of automatically generated electronic messages used in the automated data ingest process (i.e., ingesting data from LPS). They are associated with significant events that occur during an ingest transaction; consequently, their occurrence and content may be useful in troubleshooting problems that may occur with an ingest transaction. The types of messages and their fields are as follows:

- Data Availability Notice (DAN) - Notice sent to Ingest by external data provider specifying data which are available for ingest.
  - Contains the following field groups: message header (2 fields), exchange data unit label (7 fields), DAN label (7 fields), and parameter value statements (as required).
- Data Availability Acknowledgment (DAA) - Message sent from Ingest acknowledging the receipt and status of the DAN (including any DAN errors).
  - Contains the following fields: message type, message length, DAN sequence number, disposition, and transfer start time.
- Data Delivery Notice (DDN) - Notice sent from Ingest to the data provider indicating status of the transfer (including problems) and archiving of the data.
  - Contains the following fields: message type, message length, DAN sequence #, disposition, spares, time stamp, and throughput.
- Data Delivery Acknowledgment (DDA) - Message sent to Ingest acknowledging the DDN and terminating the connection.
  - Contains the following fields: message type, message length, DAN sequence #, disposition, and time stamp.

Ingest Polling Messages

As in automated ingest, messages are passed in polling ingest with delivery record. The exact number and nomenclature of messages depends on the particular data provider's agreement with ECS as specified in each Interface Control Document (ICD). Unlike the control messages in automated network ingest, which are transmitted using Transmission Control Protocol/Internet Protocol (TCP/IP) during a data exchange session, some of the polling messages are sent by e-mail.

Note that no messages are passed in polling ingest without delivery record.

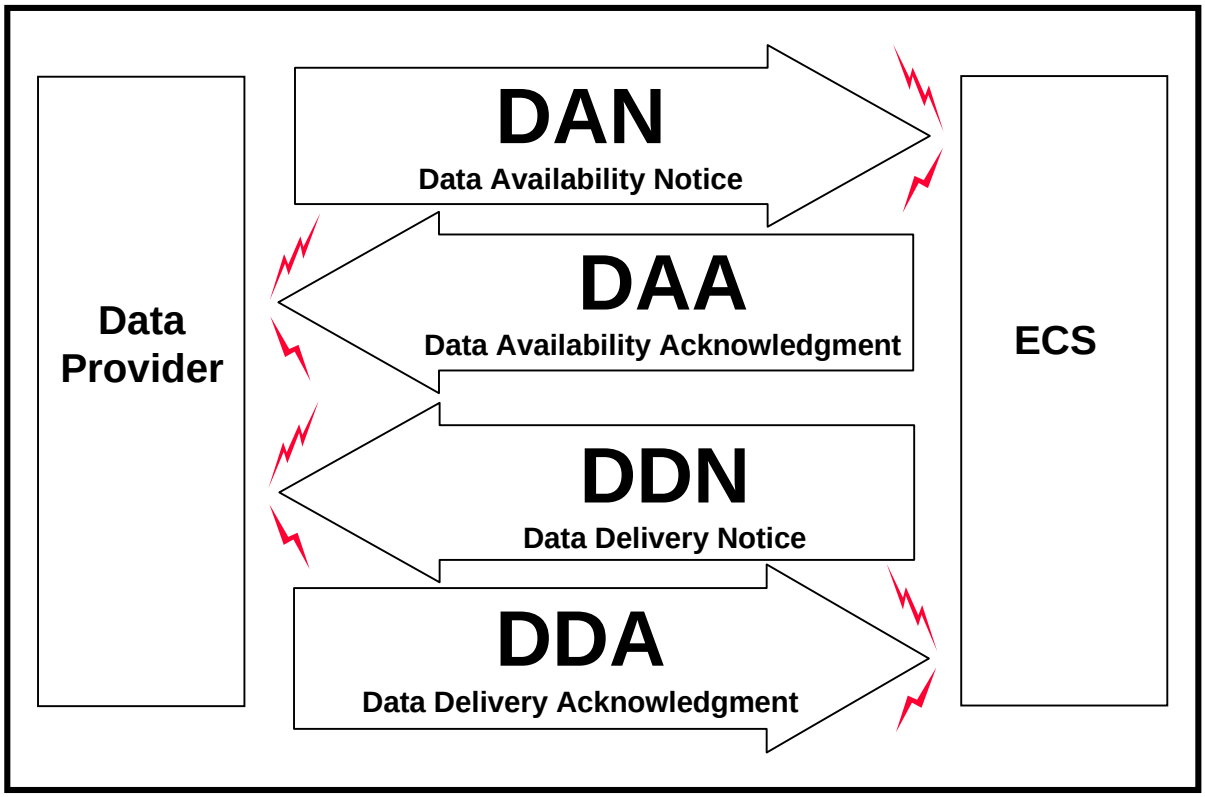

Figure 5. Ingest Automated Messages

Figure 6 shows the messages associated with the ingest of Landsat 7 Image Assessment System (IAS) data. The types of messages shown in the figure and similar messages used with other data providers are described as follows:

- Product Delivery Record (PDR) - Notice sent to Ingest by external data provider specifying data which are available for ingest.
  - Alternatives include the EDOS Production Data Set (PDS) Delivery Record (PDR) and Expedited Data Set (EDS) Delivery Record (EDR), which perform the same general function.
- Product Delivery Record Discrepancy (PDRD) - Notice sent from Ingest to the data provider via e-mail indicating that the PDR cannot be successfully validated.
  - There is no PDRD in EDOS polling.
- Product Acceptance Notification (PAN) - Message sent via e-mail to the data provider from Ingest announcing the completion of data transfer and archiving and identifying any problems with any of the files specified in the PDR.
  - Alternatives include the EDOS PDS Acceptance Notification (PAN) and EDS Acceptance Notification (EAN), which perform the same general function.

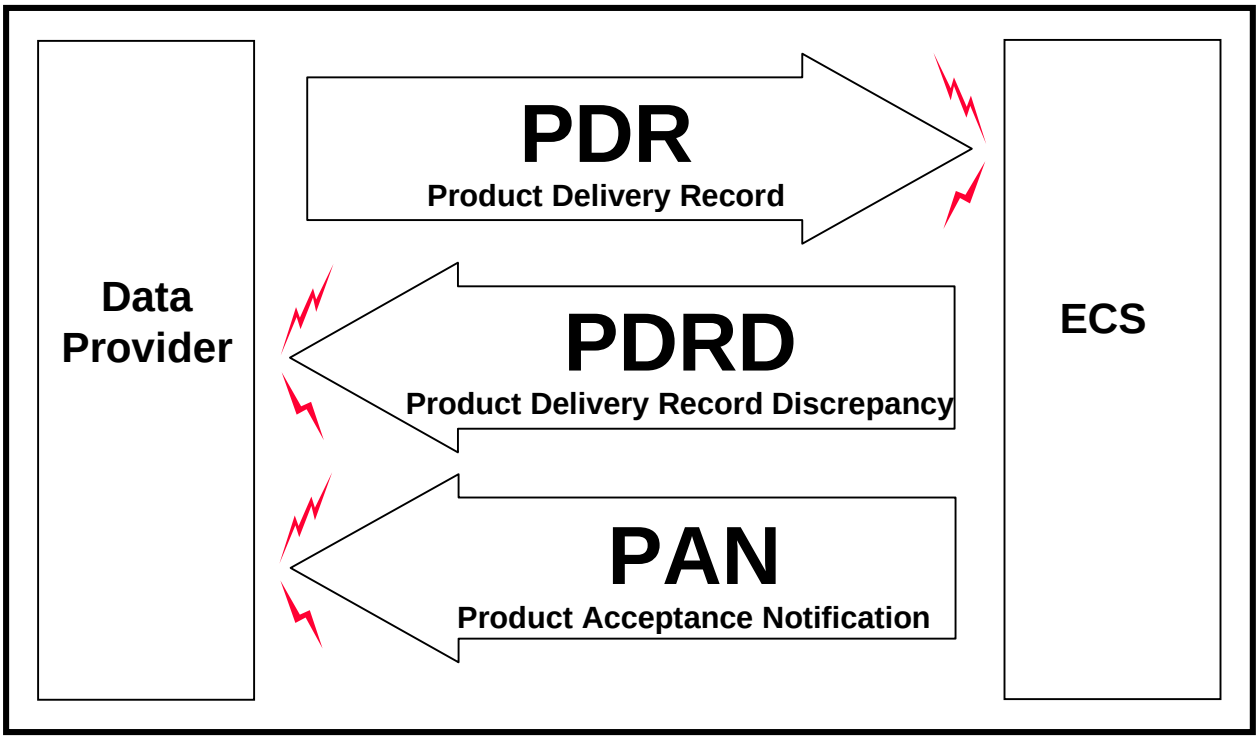

Figure 6. Ingest Polling Messages

EDOS provides a signal file to indicate that EDOS has completed transfer of a data file so the data can be ingested. The signal file is identified by an ".XFR" extension to the data file name. The content of the signal file consists solely of the full name of the data file.

Data Transfer and Staging

Science data transfer from external data providers uses one of three methods:

- Kerberized file transfer protocol (kftp) "get" by ECS.
- Kerberized ftp (kftp) "put" by external source.
- Hard media transfer.

Data are staged to one of two areas depending on the data level, data type, and other specific characteristics of the data set being ingested.

- Ingest Subsystem working storage area: Level 0 (L0) data from ongoing missions are staged to this highly reliable working storage area.
  - Metadata are extracted and their quality is checked.
  - Level 0 data are transferred to an archive data repository in the Data Server Subsystem for long-term storage.

- Working storage area in the Data Server Subsystem: Non-L0 data (e.g., ancillary data, L1 - L4 data from external data providers) are staged directly to this storage area.
  - Metadata are extracted and their quality is checked on Data Server processor hardware.
  - Non-L0 data are transferred to a Data Server Subsystem archive data repository for long-term storage.

Ingest Graphical User Interface (GUI) Tools

The **ECS Ingest** tool, illustrated in Figure 7, has five major functional areas accessible through tab selection:

- Ingest Intro – has menu for saving and printing screens, and to exit the tool.
- History Log – a view-only screen to review/report completed ingest activities.
- Monitor/Control – to view and update ongoing ingest activities.
- Operator Tools – to view and set ingest thresholds.
- Media Ingest – to ingest data from hard media.

Figure 7. ECS Ingest GUI Intro Screen

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Launching the Ingest GUI

The following software applications are associated with Ingest:

- Auto Front End (EcInAuto).
- Polling (EcInPolling).
- Request Manager (EcInReqMgr).
- Granule Server (EcInGran).
- ECS Ingest GUI (EcInGUI).
- Interactive HTML Web Server Interface (EcInInter).
- Sybase SQL Server.

There are normally multiple instances of some of the preceding servers (especially the polling and granule servers) in operation at one time. In addition, Ingest depends on a number of related servers, especially Science Data Server and Storage Management servers, to participate in ingest and the insertion of data into the data repositories.

It is expected that eventually the ECS DAAC desktop will be configured to allow access to the Ingest GUI using the icon shown in Figure 8. In the interim, access to the Ingest GUI must be gained through the use of UNIX commands.

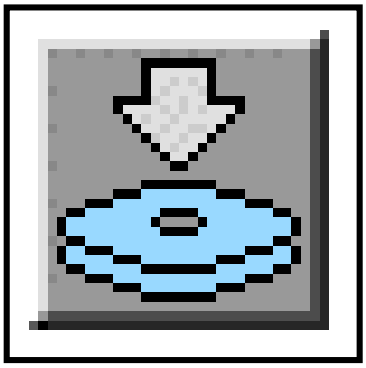

Figure 8. ECS Ingest GUI Icon

In any case, launching the Ingest GUI starts with the assumption that the applicable servers are running and the Ingest/Distribution Technician has logged in to the ECS system.

Launching the Ingest GUI

NOTE: Commands in Steps 1 through 8 are typed at a UNIX system prompt.

1• At the UNIX command line prompt type **xhost** ***hostname*** then press the **Return/Enter** key on the keyboard.

- ***hostname*** refers to the host on which GUIs are to be launched during the current operating session. Multiple hostnames (separated by spaces) can be specified on the same line.
- The use of **xhost +** is discouraged because of a potential security problem.

2 Type **setenv DISPLAY** ***clientname*****:0.0** then press the **Return/Enter** key.

- Use either the X terminal/workstation IP address or the machine-name for the ***clientname***.
- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

3 Open another UNIX (terminal) window.

4• Start the log-in to the Operations Workstation by typing **/tools/bin/ssh** ***hostname*** (e.g., **e0acs03**, **g0acs02**, **l0acs01**, or **n0acs03**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).
- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears; continue with Step 5.
- If you have not previously set up a secure shell passphrase; go to Step 6.

5• If a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears, type your ***Passphrase*** then press the **Return/Enter** key.

- Go to Step 7.

6• At the **<*user@remotehost*>'s password:** prompt type your ***Password*** then press the **Return/Enter** key.

7 Type **cd /usr/ecs/*MODE*/CUSTOM/utilities** then press **Return/Enter**.

- Change directory to the directory containing the ingest GUI startup script (e.g., EcInGUIStart).
- The ***MODE*** will most likely be one of the following operating modes:
  - — OPS (for normal operation).
  - — TS1 (for SSI&T).
  - — TS2 (new version checkout).
- Note that the separate subdirectories under /usr/ecs apply to different operating modes.

8 Type **EcInGUIStart *MODE*** then press **Return/Enter**.

- The **ECS Ingest** GUI **Ingest Intro** screen (Figure 7) is displayed.

NOTE:• If necessary, the Ingest/Distribution Technician can gain access to Storage Management and the Science Data Server through the respective GUIs. However, it should be noted that the Storage Management GUI will not be fully functional until Drop 5.

The Storage Management and Science Data Server GUIs are launched in generally the same manner as the Ingest GUI. The start-up scripts for the GUIs (EcDsStmgtGuiStart and EcDsSdSrvGuiStart) are located on different Data Server Subsystem hosts in the appropriate utilities directory (i.e., /usr/ecs/*mode*/CUSTOM/utilities).

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Monitoring Ingest Status•

In order to see how the Ingest GUI tools are used in ingest status monitoring it helps to look at ingest from the perspective of a DAAC Ingest/Distribution Technician. In addition, it is useful to define some operating conditions that might be encountered on the job. In this case it can be assumed that the system is operating under the following conditions:

- Ingest processes have been started.
- The system is operating normally.
- Data are ready for ingest.
- Several DAN or PDR files have been received and logged by the system; this results in the specific ingest processes being assigned request IDs.

Monitoring/Controlling Ingest Requests

Figures 9 and 10 illustrate the two main views of the Ingest Monitor/Control Screen. The Monitor/Control Screen can be used to check the status of ingest request processing. The information displayed in the center section of the GUI depends on a selection made in the radio box in the **Search By:** area of the screen:

- **Request ID**
  - Displays a single request if its specific request ID is entered.
- **Data Provider**
  - Displays all requests from a specific data provider, whose identification may either be selected from a pull-down list or be entered using the keyboard.
- **All Requests**
  - Displays all recent requests for which ECS has received a DAN or PDR, and which therefore have been assigned a request ID.

To the right of the radio box are two text entry fields permitting entry of a request ID if the **Request ID** button is selected, or permitting entry or selection of a data provider name if the **Data Provider** button is selected. The center of the window contains a display area for the request information, which appears in either of the following two formats depending on the user's selection of a radio button:

- **Text View** displays processing status for each request in terms of numerical values (percentages) for each phase of the Ingest process, including details on a number of parameters for each listed request.
  - **Transfer (Xfer).**

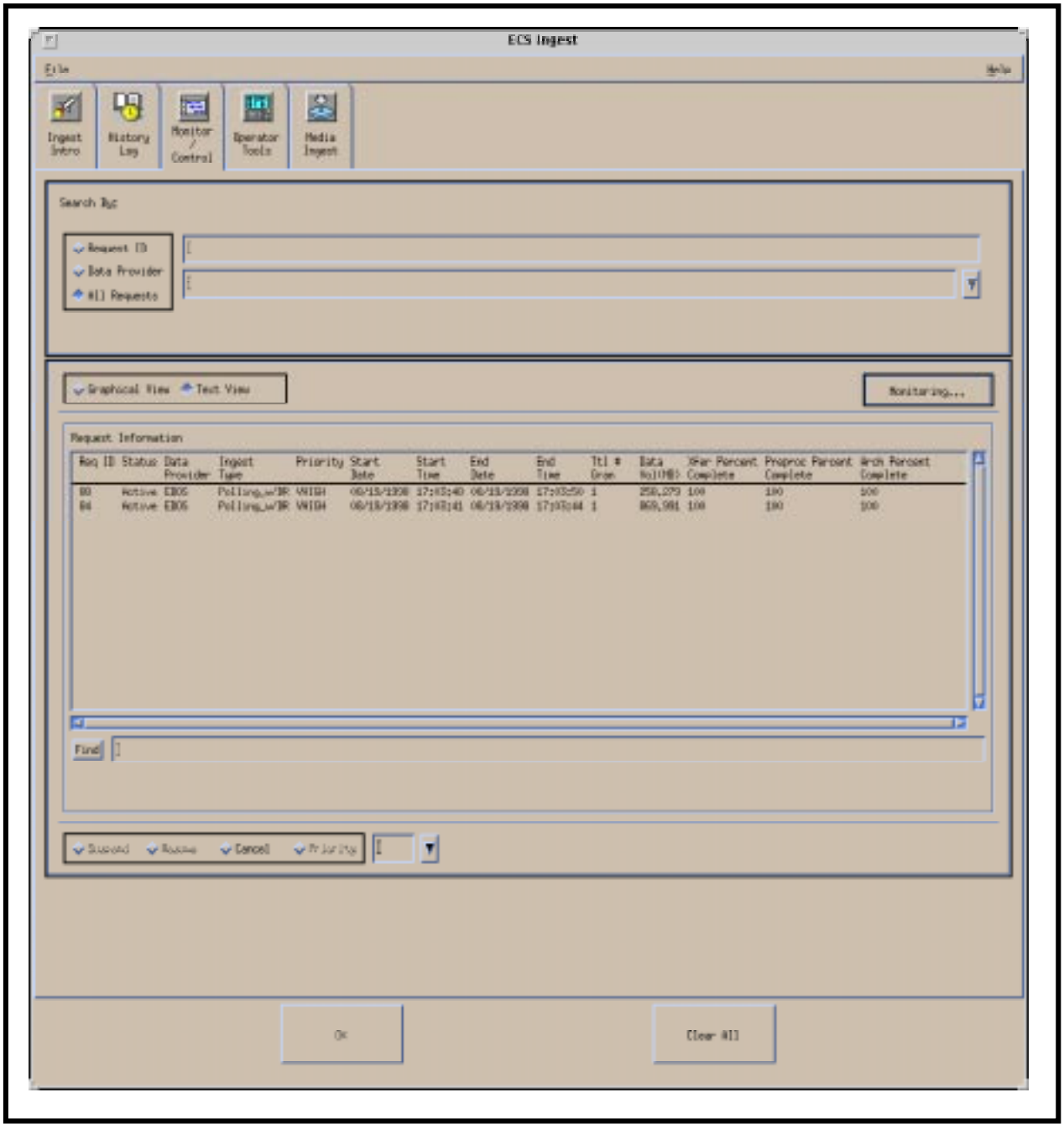

Figure 9. Ingest Monitor/Control Screen Text View•

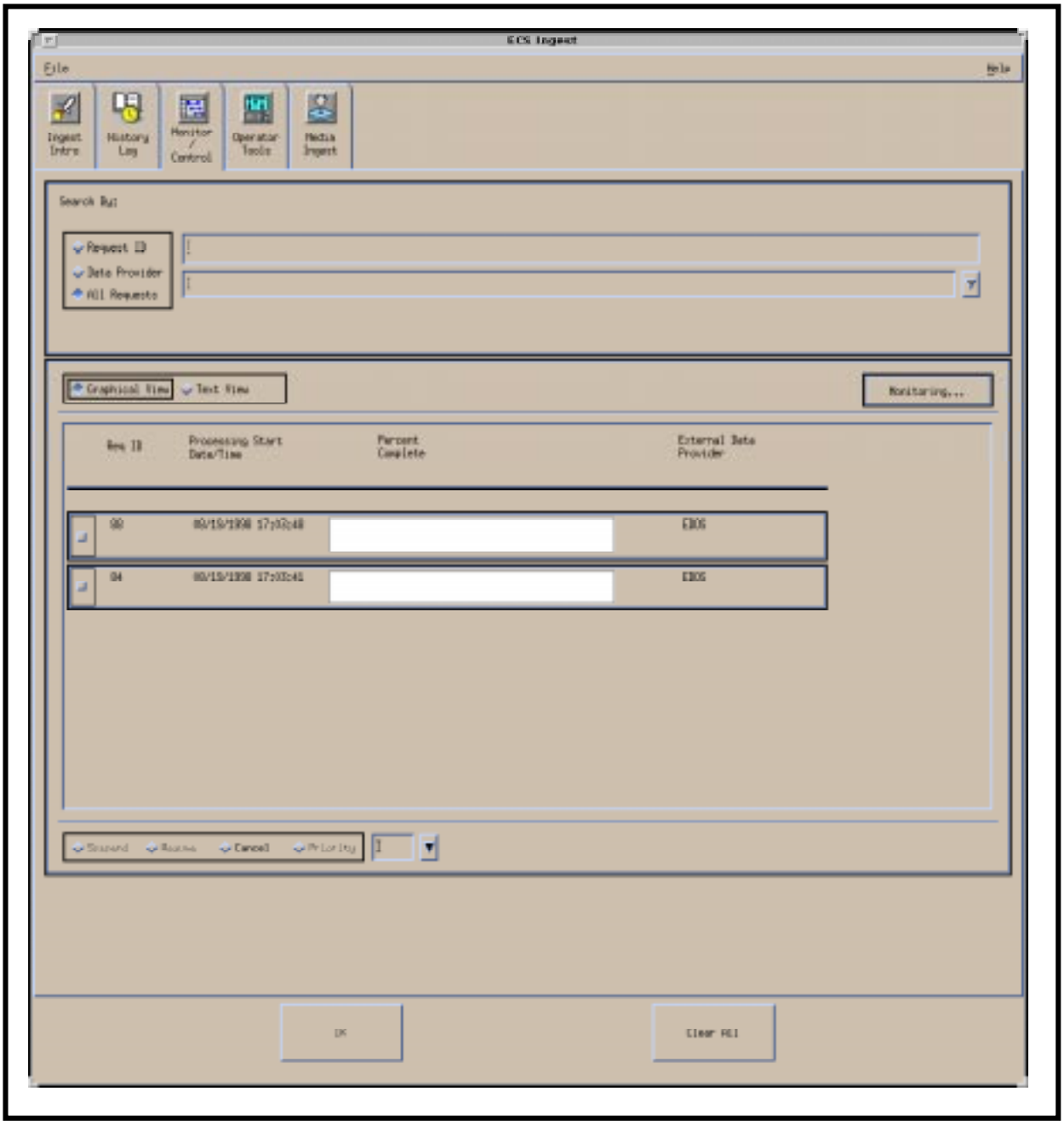

Figure 10. Ingest Monitor/Control Screen Graphical View•

  - **Preprocessing (Preproc).**
  - **Archiving (Arch).**
- **Graphical View** displays processing status for each request in terms of a bar chart for the phases of the Ingest process. It permits a quick overview of current status and what has been happening with active requests.

Below the display area there are radio buttons for controlling requests (suspending, resuming, canceling or changing the priority). At the bottom of the screen are two buttons labeled **OK** (which implements a selected control action) and **Clear All** (which clears the entries).

To monitor ingest requests use the procedure that follows. The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Monitoring/Controlling Ingest Requests

---

1 Click on the Ingest GUI **Monitor/Control** tab.

- The **Monitor/Control** screen (Figure 9) is displayed.

2 To view the status of **all** current and recent ingest requests first click on the **All Requests** button then click on either the **Graphical View** button or the **Text View** button.

- All ongoing and recently completed ingest requests are displayed.
- **Graphical View** displays the following information, including a bar graph that indicates the percentage of the ingest process that has been completed:
  - **Request ID.**
  - **Processing Start Date/Time.**
  - **Percent Complete** (bar graph representing ingest completion in percent).
  - **External Data Provider.**
- **Text View** displays numerical values representing the percentage of the ingest process that has been completed in addition to much other information concerning the ingest request.
  - **Request ID.**
  - **Status** [of the request]**.**
  - **Data Provider.**
  - **Ingest Type.**
  - **Priority** [of the request]**.**

- **Start Date.**
- **Start Time.**
- **End Date.**
- **End Time.**
- **Ttl # Gran** [total number of granules in the ingest request]**.**
- **Data Vol (MB)** [volume of data in Megabytes]**.**
- **Xfer Percent Complete** [percent of data transfer (into Ingest) that has been completed]**.**
- **Preproc Percent Complete** [percent of preprocessing that has been completed]**.**
- **Arch Percent Complete** [percent of data insertion into the data repository (archive) that has been completed]**.**

3 To view the status of current and recent ingest requests for a particular **data provider** (e.g., **EDOS**) first click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), release the mouse button then click on either the **Graphical View** button or the **Text View** button.

- An alternative method of designating the data provider is to first type it in the **Data Provider** field then click on either the **Graphical View** button or the **Text View** button.
- Ongoing requests from the selected data provider are displayed.

4 To view the status of a particular **ingest request** first type the request ID in the **Request ID** field then click on either the **Graphical View** button or the **Text View** button

- An alternative method of designating the request ID is to copy and paste (if possible) the request ID into the **Request ID** field before clicking on either the **Graphical View** button or the **Text View** button.

5 Observe ingest requests displayed in the **Request Information** list.

6 If it becomes necessary to either suspend an ingest request or resume processing of a suspended request, perform the procedure for **Suspending/Resuming Ingest Requests** (subsequent section of this lesson).

7 If it becomes necessary to cancel an ingest request, perform the procedure for **Canceling Ingest Requests** (subsequent section of this lesson).

8 Repeat Steps 2 through 7 as necessary to monitor ingest requests.

NOTE: Changing the priority of ingest requests appears to be a post-launch capability.

9 If it becomes necessary to exit from the **ECS Ingest** GUI select **File → Exit** from the pull-down menu.

Suspending/Resuming Ingest Requests

Under certain circumstances it may be advisable to suspend the processing of an ingest request and resume it at a later time. For example, if there is a very large request that is taking up resources and causing other requests to back up waiting, the processing of that request should be suspended until a time when there is less demand on Ingest.

NOTE: In some variants of Drop 4 it is not possible to suspend/resume or change the priority of ingest requests.

Use the procedure that follows to suspend and subsequently resume an ingest request. The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the ingest request to be canceled is being displayed on the **Monitor/Control** tab.

Suspending/Resuming Ingest Requests

---

1 To **suspend** requests, perform Steps 2 through 4; to **resume** suspended requests, go to Step 5.

2 Click on the row corresponding to the request to be suspended on the **Monitor/Control** tab to highlight the request, then click on the **Suspend** button.

3 Click on the **OK** button at the bottom of the GUI.

- Processing of the selected ingest request stops.
- Status of the request, as displayed in the **Status** column of the **Request Information** list (if using **Text View**), changes from its original value to "Suspended."

4 If there are no suspended requests to be resumed at this time, return to the procedure for **Monitoring/Controlling Ingest Requests**.

5 Click on the row corresponding to the request to be resumed on the **Monitor/Control** tab, then click on the **Resume** button.

6 Click on the **OK** button at the bottom of the GUI.

- The selected ingest request resumes processing.
- Status of the request, as displayed in the **Status** column of the **Request Information** list (if using **Text View**), changes from "Suspended" to whatever state is appropriate for the continuation of request processing (depending on its status when it was suspended).

7 Return to the procedure for **Monitoring/Controlling Ingest Requests**.

Canceling Ingest Requests

Sometimes it may be necessary to cancel the processing of an ingest request. The procedure for canceling ingest request processing starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the ingest request to be canceled is being displayed on the **Monitor/Control** tab.

Canceling Ingest Requests

---

1 To cancel a request first click on the corresponding row in the list of ingest requests to highlight the desired request.

- The selected ingest request is highlighted.

2 Click on the **Cancel** button near the bottom of the **Monitor/Control** tab.

3 Click on the **OK** button at the bottom of the GUI.

- A confirmation dialog box is displayed.

4 Click on the **OK** button in the confirmation dialog box.

- The selected ingest request is canceled.

5 Return to the procedure for **Monitoring/Controlling Ingest Requests**.

Viewing the Ingest History Log

When an ingest transaction has been completed, several things happen:

- A notice is automatically sent to the data provider indicating the status of the ingested data.
- The data provider sends an acknowledgment of that notice.
- Receipt of the acknowledgment is logged by ECS.
- The request ID of that ingest request is removed from the list of active requests.
- The Ingest History Log receives statistics on the completed transaction.

The following four search criteria can be used individually or in combination to view entries in the Ingest History Log:

- Time Period (Start and Stop Date/Time).
- Data Provider ID (e.g., EDOS, NOAA, or a science team).
- Data Type (e.g., AST_L1B).

- Final Request Status (e.g., Successful, Failed, or Terminated).

The Ingest History Log provides reports in the following formats:

- **Detailed Report** gives detailed information about each completed ingest request.
- **Summary Report** is a summary of ingest processing statistics, including the average and maximum time taken to perform each step in the ingest process.
  - **Request-level** Summary Report provides ingest request processing statistics.
  - **Granule-level** Summary Report provides ingest granule processing statistics organized by data provider and Earth Science Data Type (ESDT):

To view the history log, use the procedure that follows. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Viewing the Ingest History Log

---

1 Click on the Ingest GUI **History Log** tab.

- The **History Log** screen (Figure 11) is displayed.
- If History Log entries are to be displayed on the basis of a particular….
  - time period, perform Step 2. (If no time period is specified, log entries for the most recent 24-hour period will be displayed.)
  - data provider, perform Step 3.
  - data type, perform Step 4.
  - final request status, perform Step 5.
- Any of the preceding criteria (time period, data provider, data type, or final request status) may be used individually or in combination to view entries in the Ingest History Log.

2 To view Ingest History Log entries for a particular **time period**, click in the appropriate **Start Date/Time** and/or **Stop Date/Time month/day/year** and **hour/min/sec** fields and type the appropriate numerical values in ***M(M)/D(D)/YYYY hh:mm:ss*** format.

- The **Tab** key may be pressed to move from field to field.
- Use the 24-hour format to designate the hour (e.g., type **14** to designate 2 p.m.) in the **hour** fields.
- If using the **Tab** key to advance from one field to the next, it is possible to bypass the entry of **seconds** by pressing the **Tab** key.

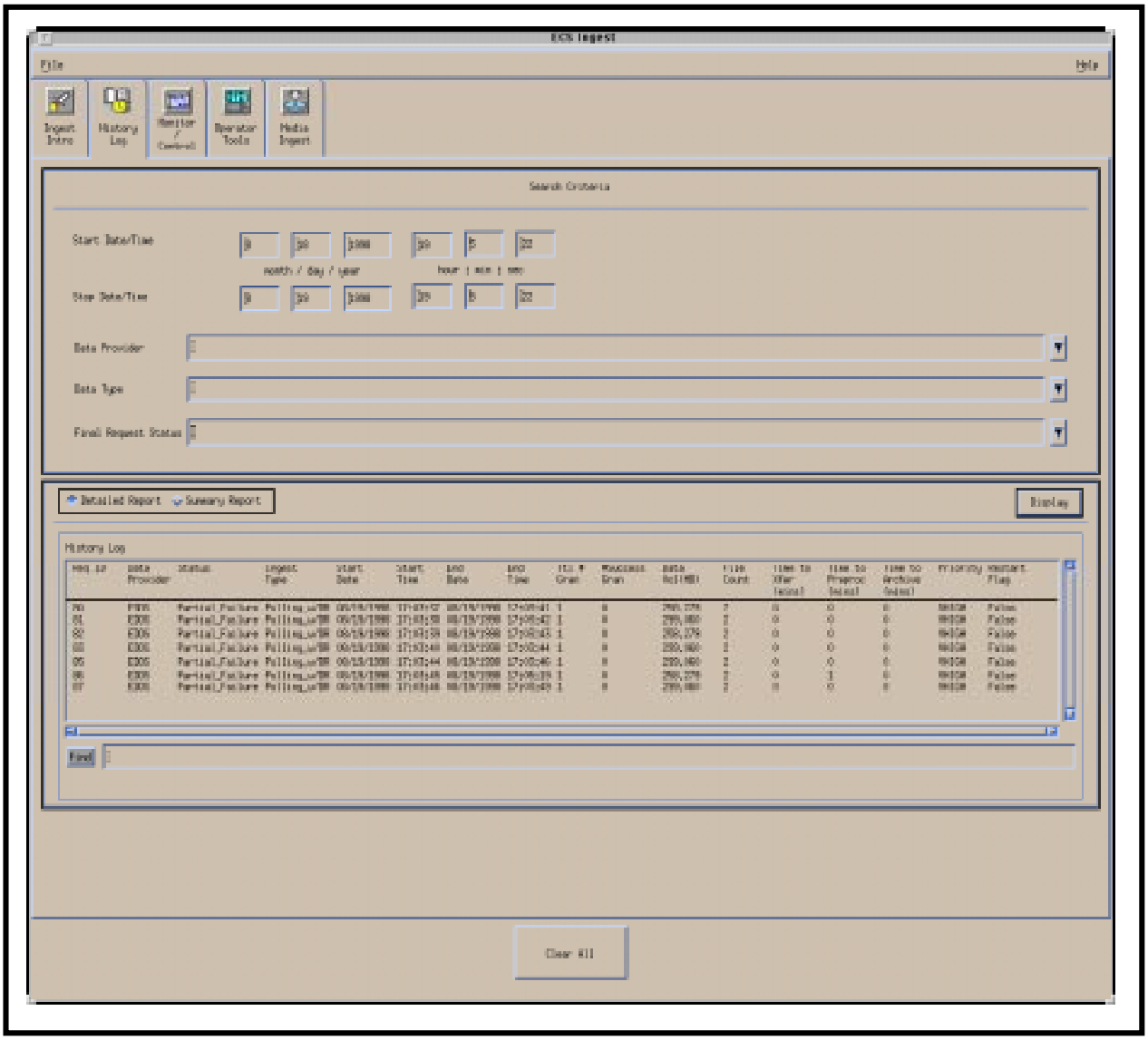

Figure 11. Ingest History Log Screen

3 To view log entries for a particular **data provider** (e.g., **EDOS**) click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of designating the data provider is to type it in the **Data Provider** field.
- An alternative method of designating the data type is to type it in the **Data Type** field.

4 To view log entries of a particular **data type** (e.g., **AST_L1B**) click and hold on the option button to the right of the **Data Type** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

5 To view log entries with a particular final request status (e.g., **Terminated**) click and hold on the option button to the right of the **Final Request Status** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of designating the final request status is to type it in the **Final Request Status** field.

6 Click on either the **Detailed Report** button or the **Summary Report** button.

- The **Detailed Report** provides the following types of information on each completed ingest request.
  - **Request ID.**
  - **Data Provider.**
  - **Status.**
  - **Ingest Type.**
  - **Start Date.**
  - **Start Time.**
  - **End Date.**
  - **End Time.**
  - **Ttl # Gran** [total number of granules in the ingest request]**.**
  - **#Success Gran** [total number of granules in the ingest request that were successfully ingested]**.**
  - **Data Vol (MB)** [volume of data in Megabytes]**.**
  - **File Count.**
  - **Time to Xfer (mins)** [transfer time in minutes]**.**
  - **Time to Preproc (mins)** [preprocessing time in minutes]**.**
  - **Time to Archive (mins).**
  - **Priority.**
  - **Restart Flag.**
- The **Summary Report** displays a summary that includes the average and maximum time needed to perform each step in the ingest process. (Refer to the next step for additional information.)

7 If the **Summary Report** button was selected in the preceding step, click on either the **Request level** button or the **Granule level** button.

- The **Request level** Summary Report provides Ingest request processing statistics.
  - **Data Provider.**
  - **Ttl Reqs** [total number of requests]**.**
  - **Total Errs** [total number of errors per request]**.**
  - **Gran Avg** [average number of granules per request]**.**
  - **Gran Max** [maximum number of granules in a request]**.**
  - **File Avg** [average number of files per request]**.**
  - **File Max** [maximum number of files in a request]**.**
  - **Size (MB) Avg** [average request size in Megabytes]**.**
  - **Size (MB) Max** [maximum request size in Megabytes]**.**
  - **Transfer Time (mins) Average** [average request transfer time in minutes]**.**
  - **Transfer Time (mins) Max** [maximum request transfer time in minutes]**.**
  - **Preproc Time (mins) Avg** [average request preprocessing time in minutes]**.**
  - **Preproc Time (mins) Max** [maximum request preprocessing time in minutes]**.**
  - **Archive Time (mins) Avg** [average request archiving time in minutes]**.**
  - **Archive Time (mins) Max** [maximum request archiving time in minutes]**.**
- The **Granule level** Summary Report includes the following types of information organized by data provider and Earth Science Data Type (ESDT):
  - **Data Provider.**
  - **Data Type.**
  - **Total Granules.**
  - **Total Errors.**
  - **File Avg.**
  - **File Max.**
  - **Size (MB) Avg.**
  - **Size (MB) Max.**
  - **Transfer Time (mins) Average.**
  - **Transfer Time (mins) Max.**

- **Preproc Time (mins) Avg.**
- **Preproc Time (mins) Max.**
- **Archive Time (mins) Avg.**
- **Archive Time (mins) Max.**

8 Click on the **Display** button.

- Each ingest request that was completed, logged, and meets the specified criteria (time period, data provider, data type, and/or final status) is displayed.

9 Observe ingest request information displayed in the **History Log/Processing Statistics** field.

10 If a printed report is desired, select **Print** from the **File** pull-down menu (**File → Print**).

11 To clear the display after viewing the history log data on the screen, click on either the **Go Back** button (if available) or the **Clear All** button.

- Entries in the **Search Criteria** fields and the **History Log/Processing Statistics** field are erased.

Verifying the Archiving of Ingested Data

It is possible to determine whether Ingest has been successful by checking the appropriate directory on the File and Storage Management System (FSMS) host (e.g., g0drg01).

- The directories are identified by the type of data (e.g., aster, ceres, l7, modis) in them and correspond directly to tape volumes in the system.
- The procedure is not likely to interfere with archive activities because it is just a matter of checking the relevant FSMS directory to determine whether the applicable files/granules have been transferred to tape volumes in the system.
- The procedure does not involve the use of any archive software.
- Before starting it is essential to know what data to look for. For example, End Date(s)/Time(s) and Data Volume(s) for ingest requests shown on the ECS Ingest GUI can be used for comparison with dates/times and file sizes listed for the files in the relevant directory on the FSMS host.

To verify the archiving of ingested data use the procedure that follows. The procedure starts with the assumption that the Ingest/Distribution Technician has logged in to the ECS system.

NOTE: Commands in Steps 1 through 7 are typed at a UNIX system prompt.

1 At the UNIX command line prompt type **xhost** ***hostname*** then press the **Return/Enter** key on the keyboard.

- ***hostname*** refers to the host on which GUIs are to be launched during the current operating session. Multiple hostnames can be specified on the same line.
- The use of **xhost +** is discouraged because of a potential security problem.

2 Open another UNIX (terminal) window.

3 Start the log-in to the FSMS Server host by typing **/tools/bin/ssh** ***hostname*** (e.g., **e0drg01**, **g0drg01**, **l0drg01**, or **n0drg01**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).
- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears; continue with Step 4.
- If you have not previously set up a secure shell passphrase; go to Step 5.

4 If a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears, type your ***Passphrase*** then press the **Return/Enter** key.

- Go to Step 6.

5 At the **<*user@remotehost*>'s password:** prompt type your ***Password*** then press the **Return/Enter** key.

6 Type **cd /dss_stk1/*MODE*/*datatype*** then press the **Return/Enter** key.

- Change directory to the directory containing the archive data (e.g., /dss_stk1/OPS/modis/).
  - The specific path varies from site to site and with the operating mode and type of data being ingested.
- The ***MODE*** will most likely be one of the following operating modes:
  - OPS (for normal operation).
  - TS1 (for SSI&T).
  - TS2 (new version checkout).

7 Type **ls –la** then press the **Return/Enter** key to list the contents of the directory.

- A list of subdirectories and files in the current directory is displayed.
- The list should include the ingested data.
- If necessary, continue changing directory until the relevant granules/files have been located.

8 Compare the End Date(s)/Time(s) and Data Volume(s) for the applicable ingest request(s) shown on the Ingest GUI with the dates/times and file sizes listed for the files in the directory.

Cleaning Polling Directories

The polling directories should be cleaned up automatically after successful archiving, otherwise they would quickly run out of disk space. However, automatic clean-up is not scheduled to be implemented before Drop 5B. Until that time polling directory clean-up must be done manually.

Cleaning the polling directories starts with the assumption that the applicable servers are running and the Ingest/Distribution Technician has logged in to the ECS system.

Cleaning the Polling Directories

NOTE: Commands in Steps 1 through 7 are typed at a UNIX system prompt.

1 At the UNIX command line prompt type **xhost *hostname*** then press the **Return/Enter** key on the keyboard.

- ***hostname*** refers to the host on which GUIs are to be launched during the current operating session. Multiple hostnames can be specified on the same line.
- The use of **xhost +** is discouraged because of a potential security problem.

2 Open another UNIX (terminal) window.

3 Start the log-in to the Operations Workstation by typing **/tools/bin/ssh *hostname*** (e.g., **e0acs03**, **g0acs02**, **l0acs01**, or **n0acs03**) in the new window then press the **Return/Enter** key.

- If you receive the message, **Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?** type **yes** ("**y**" alone will not work).
- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears; continue with Step 4.
- If you have not previously set up a secure shell passphrase; go to Step 5.

4 If a prompt to **Enter passphrase for RSA key '<*user@localhost*>'** appears, type your ***Passphrase*** then press the **Return/Enter** key.

- Go to Step 6.

5 At the **<*user@remotehost*>'s password:** prompt type your ***Password*** then press the **Return/Enter** key.

6 Type **cd /usr/ecs/*MODE*/CUSTOM/utilities** then press **Return/Enter**.

- Change directory to the directory containing the ingest polling directory clean-up script (e.g., EcInPollClean).

7 Type **EcInPollClean /*path days*** then press **Return/Enter**.

- ***Path*** refers to the directory path to the EDOS polling directory (e.g., /usr/ecs/*mode*/CUSTOM/icl/*INS_host*/data/pollEDOS).
- ***days*** refers to a number of days; any files in the EDOS polling directory (and subdirectories) older than the specified number of days will be deleted.
- If there are **no** files in the directory older than the specified number of days, the script quits after displaying the following message:
  - **######## There is no file in this directory older than x days.**
    ######## Exit deletion.
- If there are files in the directory older than the specified number of days, the script quits after displaying the following message:
  - **######## The following are files older than x days in directory:. ########**
    ######## pollEDOS
    ########
    ######## Please check before deleting them.
    Shall we continue deletion? Type y or n only :

8 Type either **y** or **n** (as appropriate) then press **Return/Enter**.

- Either lower-case or upper-case letters may be typed.
- If **y** was typed, the following message is displayed:
  - **######## The answer is Yes.**
    ######## Continue deletion.
- If **n** was typed, the following message is displayed:
  - **######## The answer is No.**
    ######## Do not continue deletion.

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Performing Hard Media Ingest•

Ingest from Tape Cartridges

ECS currently supports hard media ingest from either of the following types of media, although both types may not be supported at all sites:

- 8mm tape cartridges.
  - Each 8mm stacker contains two tape drives and can store up to 10 tape cartridges.
  - Each tape cartridge (8mm, or D3) is identified by means of a bar code label that shows the media number.
- D3 tape cartridges.

In the future ECS will support ingest from other media, such as optical disks.

Ingest of data (e.g., data from the science community) from physical media into ECS is performed by the DAAC Ingest/Distribution Technician using the **Media Ingest** tool on the Ingest GUI.

- A Product Delivery Record (PDR) file is required for hard media ingest; it may be handled in one of two ways.
  - Embedded in (recorded on) the hard medium.
  - Made available electronically (e.g., in a specified network directory).
    - Data provider transfers the PDR file (using ftp) to the network directory location before delivery of the hard medium.
- The Ingest/Distribution Technician uses the **Media Ingest** screen of the ECS Ingest GUI (see Figure 12), mounts the media on a specific device, and enters necessary parameters.
- The Ingest/Distribution Technician monitors and responds to error messages displayed on the Ingest GUI and reviews data errors with appropriate parties (e.g., the DAAC Archive Manager, Science Data Specialist, and/or the data provider).

Performing Media Ingest from 8mm Tape

To perform hard media ingest from 8mm tape use the procedure that follows. (Use the procedure that follows this one for D3 tape ingest.) The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

1 Compare the received medium to a media ingest readiness checklist to verify that everything needed for the media ingest is in order.

- The media ingest readiness checklist includes the following types of checks:
  - PDR file is available, either placed on the network by the data provider or embedded in the media.
  - Data provider has identified the PDR file name.
  - There is a unique Media Volume ID for each tape received.
  - An appropriate device (tape drive) is available to support the data transfer.

2 Click on the Ingest GUI **Media Ingest** tab.

- The **Media Ingest** screen (Figure 12) is displayed.

3 To enter the type of medium (i.e., **8mm Tape**) click and hold on the option button to the right of the **Media Type** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected type of medium is displayed in the **Media Type** field (as shown in Figure 13).

4 Type the stacker ID in the **Stacker ID** field.

5 Place the tape cartridge in a stacker slot.

6 Type the stacker slot ID in the **Stacker Slot ID** field.

CAUTION

The stacker slot identification that is entered must correspond exactly to the stacker slot into which the tape is loaded, or the system may ingest the wrong data.

7 To enter the data provider (e.g., **SDPF**) click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected data provider is displayed in the **Data Provider** field.

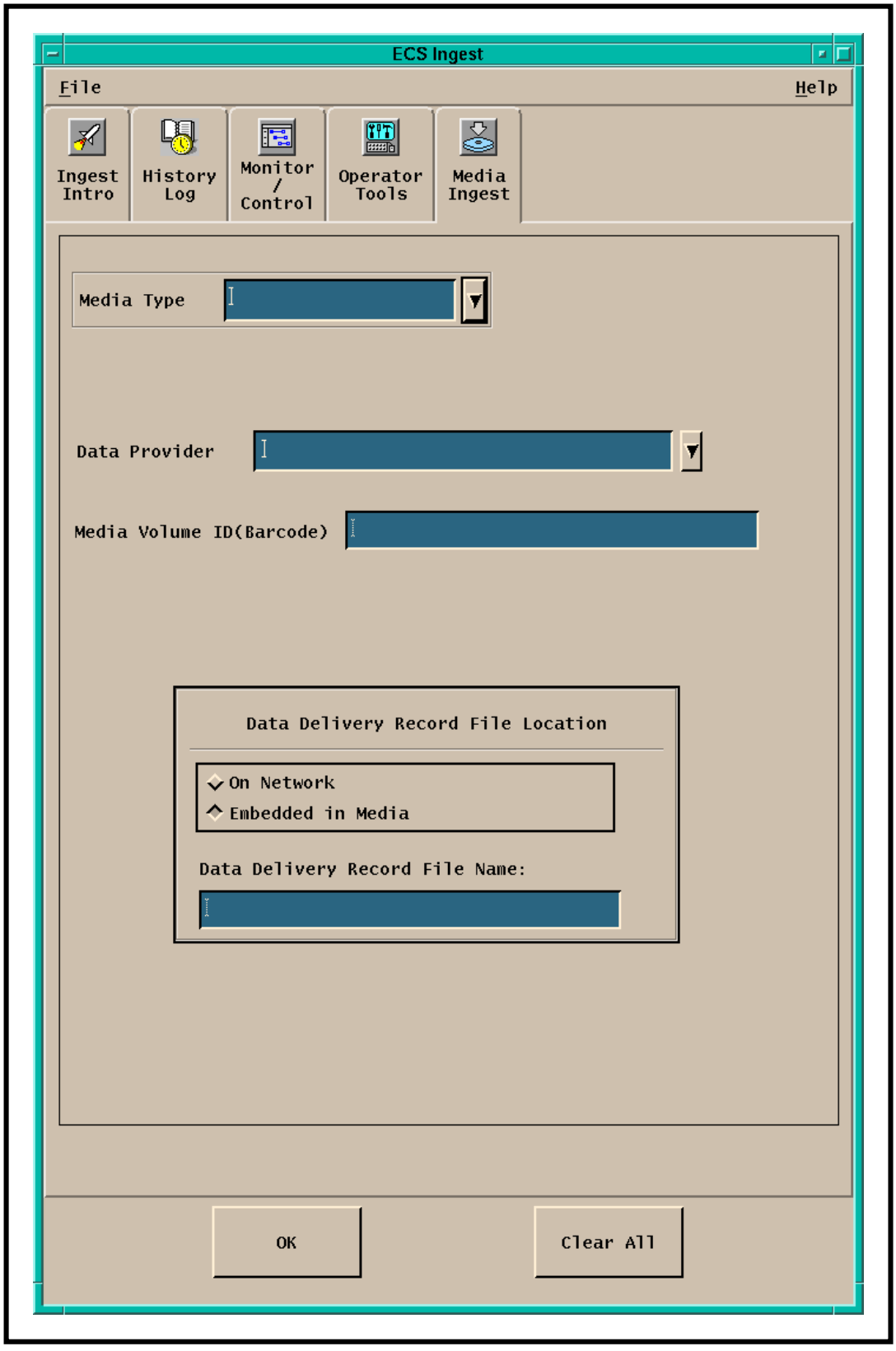

Figure 12. Media Ingest Screen

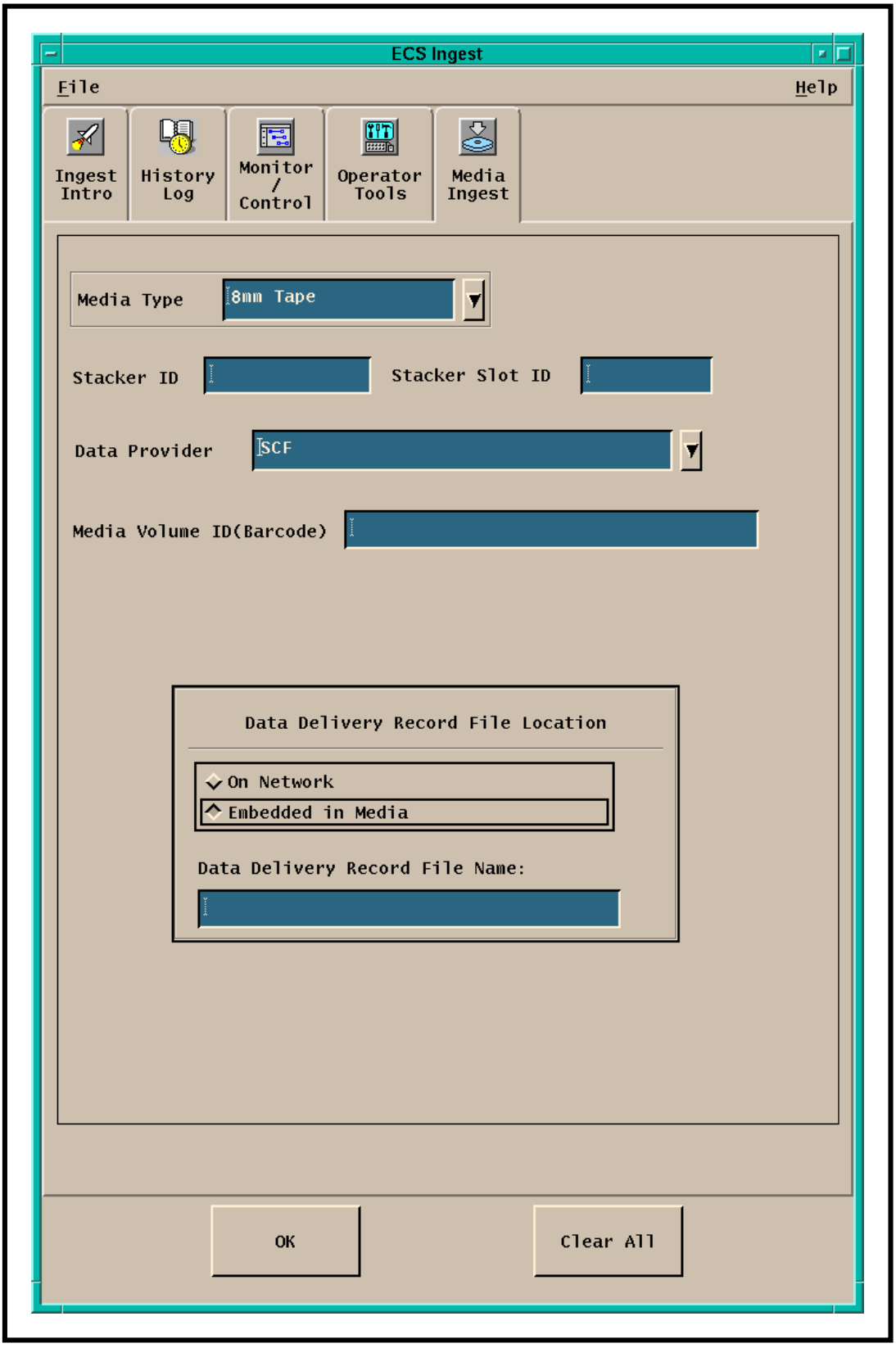

Figure 13. Media Ingest Screen (8mm Tape)

8 Verify that there is a **Media Volume ID** sticker on the tape cartridge containing the data to be ingested.

9 Type the media volume ID in the **Media Volume Id (Barcode)** field.

10 Click on the appropriate radio button in the **Data Delivery Record File Location** box.

- Click on the **On Network** button if the PDR file is located on the network.
- Click on the **Embedded in Media** button if the PDR file is recorded on the tape.

11 Type the data delivery record file name (e.g., **sdpf31a.PDR**) in the **Data Delivery Record File Name** field.

12 Click on the **OK** button at the bottom of the GUI.

- Data transfer is initiated.

NOTE: During data transfer from tape, the Ingest GUI prevents any other function from being selected until the transfer has been completed.

Performing Media Ingest from D3 Tape

In addition to hard media ingest from 8mm tape cartridges, it is possible for the DAAC Ingest/Distribution Technician to have data ingested from a D3 tape utilizing the Ingest GUI and the Storage Tek Controller/Transport Redwood SD-3 for D3 tape cartridge processing.

To perform hard media ingest from a D3 tape use the procedure that follows. The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Performing Media Ingest from D3 Tape

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1 Compare the received medium to a media ingest readiness checklist to verify that everything needed for the media ingest is in order.

- The media ingest readiness checklist includes the following types of checks:
  - PDR file is available, either placed on the network by the data provider or embedded in the medium.
  - Data provider has identified the PDR file name.
  - There is a unique Media Volume ID for each tape received.
  - An appropriate device (tape drive) is available to support the data transfer.

2 Verify that the display above the D3 tape unit indicates "*****".

3 Verify that there is **no** tape cartridge inserted in the D3 tape unit.

- Remove the tape cartridge in the D3 tape unit (if applicable).

4 Verify that the **Ready** light is illuminated in the second row of the panel near the window of the D3 tape unit where the tape is inserted.

- If the **Ready** light is not illuminated, push the **Ready** button.

5 Click on the Ingest GUI **Media Ingest** tab.

- The **Media Ingest** screen (Figure 12) is displayed.

6 To enter the type of medium (i.e., **D3 Tape**) click and hold on the option button to the right of the **Media Type** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected type of medium is displayed in the **Media Type** field (as shown in Figure 14).

7 To enter the data provider (e.g., **SCF**) click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- The selected data provider is displayed in the **Data Provider** field.

8 Verify that there is a **Media Volume ID** sticker on the tape cartridge containing the data to be ingested.

9 Type the media volume ID in the **Media Volume Id (Barcode)** field.

10 Click on the appropriate radio button in the **Data Delivery Record File Location** box.

- Click on the **On Network** button if the PDR file is located on the network.
- Click on the **Embedded in Media** button if the PDR file is recorded on the tape.

11 Type the data delivery record file name (e.g., **scf11a.PDR**) in the **Data Delivery Record File Name** field.

12 Click (**once only**) on the **OK** button at the bottom of the GUI.

- The GUI **OK** button is sensitive to being clicked more than once. It is important to click it dead center once only or D3 ingest is likely to fail.

13 Insert the tape cartridge in the D3 tape drive.

- The tape cartridge must be inserted within one minute of clicking on the **OK** button on the Ingest GUI.
- The message "Loading" should be displayed on the D3 tape drive unit panel.
- Then the message "Ready" should be displayed on the D3 tape drive unit panel and the "ready" light should blink on and off for a while.

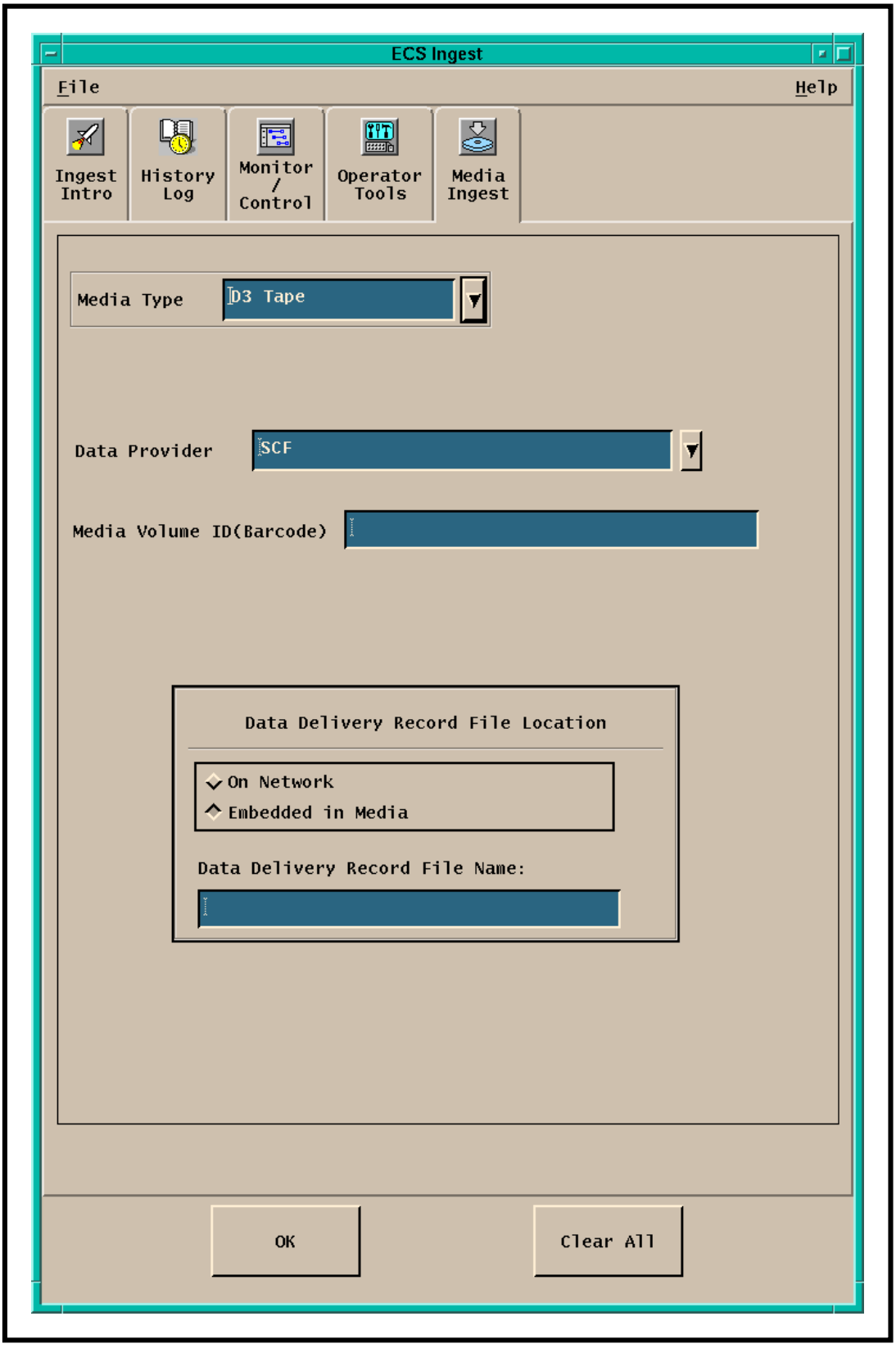

Figure 14. Media Ingest Screen (D3 Tape)

- Avoid clicking the mouse on the Ingest GUI while the D3 tape unit is reading the tape.
- Once the extraction command has been executed, the system reads the D3 tape from the header label, then accesses the data needed for Ingest processing.

NOTE: During data transfer from tape, the Ingest GUI prevents any other function from being selected until the transfer has been completed.

14 When the data transfer has been completed, wait for the message "Ingest Request Completed."

- The messages "Rewinding" then “Unloading” should be displayed on the D3 tape drive unit panel as the D3 tape drive unit rewinds and unloads after the data transfer.
- Upon completion of the process the D3 tape automatically rewinds and ejects itself from the tape drive.

15 Remove the tape cartridge from the D3 tape drive.

Performing Interactive Ingest

General Description of Interactive Ingest Functions

Interactive Ingest is not a feature of Drop 4. It may not be fully functional until Drop 5. Consequently, this section of the lesson is limited to a general description of Interactive Ingest and the procedure for launching Interactive Ingest.

A data provider will be able to have data ingested over a network without direct Ingest/Distribution Technician action. An HTML web server (Netscape) interface will provide authorized science users with the capability to have data ingested interactively. The HTML interface will be available to DAAC Ingest/Distribution Technicians as well as external data providers.

The HTML interface will allow the data provider to perform the following functions:

- Create a Data Availability Notice (DAN).
- Submit an ingest request.
- Monitor the status of the on-going request(s).

Creating a DAN

Before a data provider can have data ingested into the ECS system via Interactive Ingest, a DAN must be sent to the Ingest Subsystem indicating that there are data files ready for transfer. The DAN specifies the parameters needed to identify what files are ready for pickup, their location, and how long they will be available in that location. The data provider will be able to use the HTML interface **Create DAN Form** screen to generate a DAN.

Submitting an Ingest Request

The data provider will select the DAN identifying the files to be ingested from a list displayed on the **Submit Ingest Request** screen. ECS will log receipt of the DAN and assign a request identification (ID) number. A summary of the DAN contents will be placed in the event log. The Ingest Subsystem will generate a corresponding ingest request and store the request on a prioritized list. A Data Availability Acknowledgment (DAA) will be sent from Ingest to the data provider indicating readiness to ingest the data identified in the DAN.

Monitoring On-Going Request Status

The **Ingest Request On-Going Status** screen will display all the active requests for the data provider. The **Ingest Request On-Going Status** screen will display each data request, its **Request ID** number and the acceptance or rejection of the data request. It will be possible to use

the **On-Going Status Monitor** screen to display additional details on specific requests, including the granule level status.

Launching Interactive Ingest

Network access to the Ingest Subsystem will be provided through **Netscape Navigator**. The procedure that follows describes how to launch Interactive Ingest. The procedure starts with the following assumptions:

- The person launching Interactive Ingest has successfully logged in to a workstation or X-Terminal with Internet access.
- The DAAC Ingest servers are running.

Launching Interactive Ingest

---

1 Launch Netscape Navigator by double-clicking on the **Netscape Navigator** icon if such an icon is accessible on the desktop.

- Alternatively, in a UNIX window type **netscape &** then press the **Return/Enter** key.
- The **Netscape Navigator** browser (Figure 15) is displayed.

2 Type the **URL** of the **Ingest Home Page** (e.g., http://cheyenne/) in the **Location:** (**Go To:**) field, then press the **Return/Enter** key.

- The **Data Provider Login** page (Figure 16) is displayed.

3 Type the name of the data provider in the **ECS Data Provider** field.

4 Type the data provider's password in the **ECS Data Provider Password** field.

5 Click on the **Submit** button.

- A pop-up window is displayed to provide data security notification.

6 Click on the **Continue Submission** button.

- The **Interactive Ingest Main Form** page (Figure 17) is displayed.
- Interactive Ingest has been successfully launched.

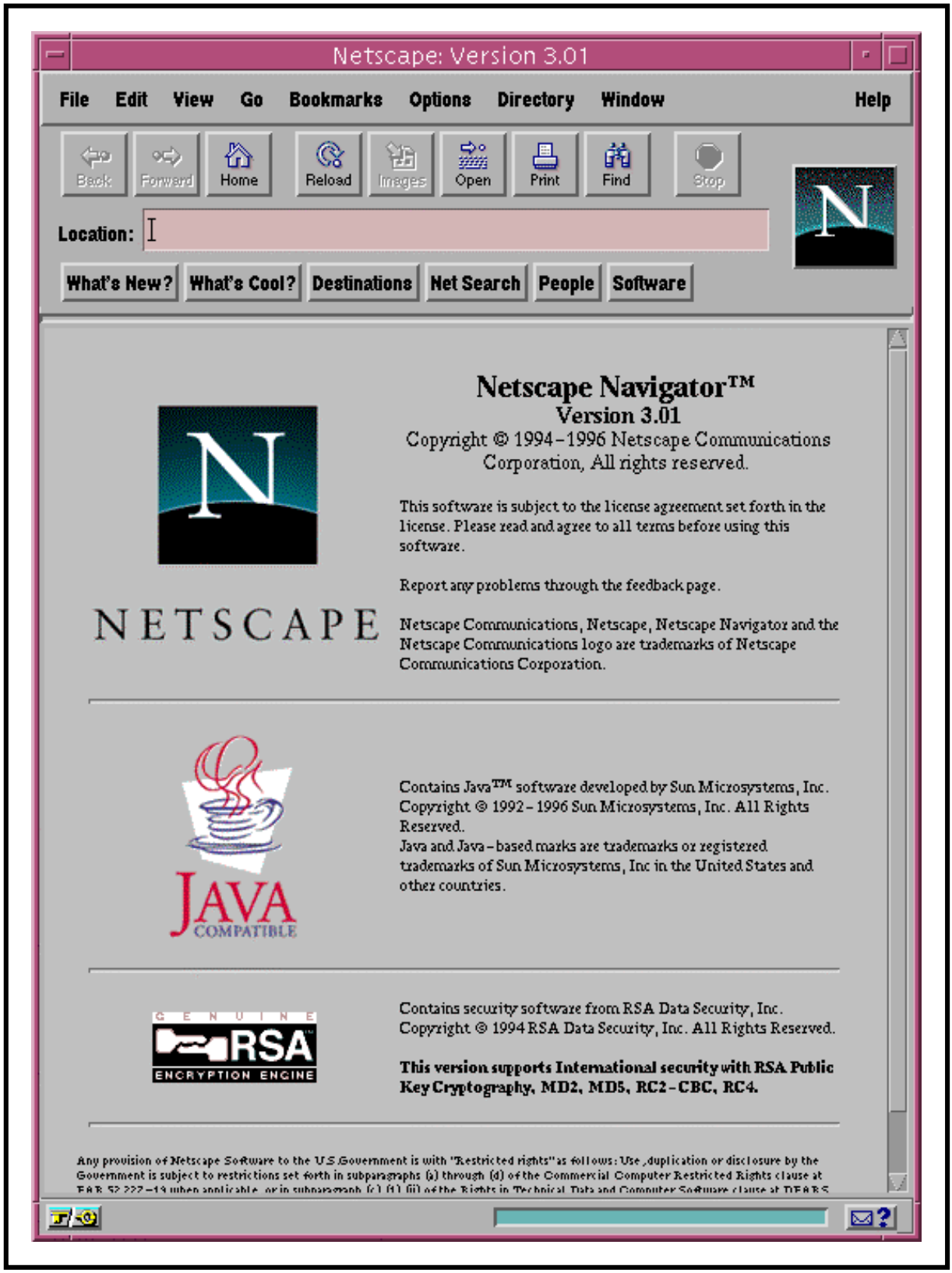

Figure 15. Netscape Navigator

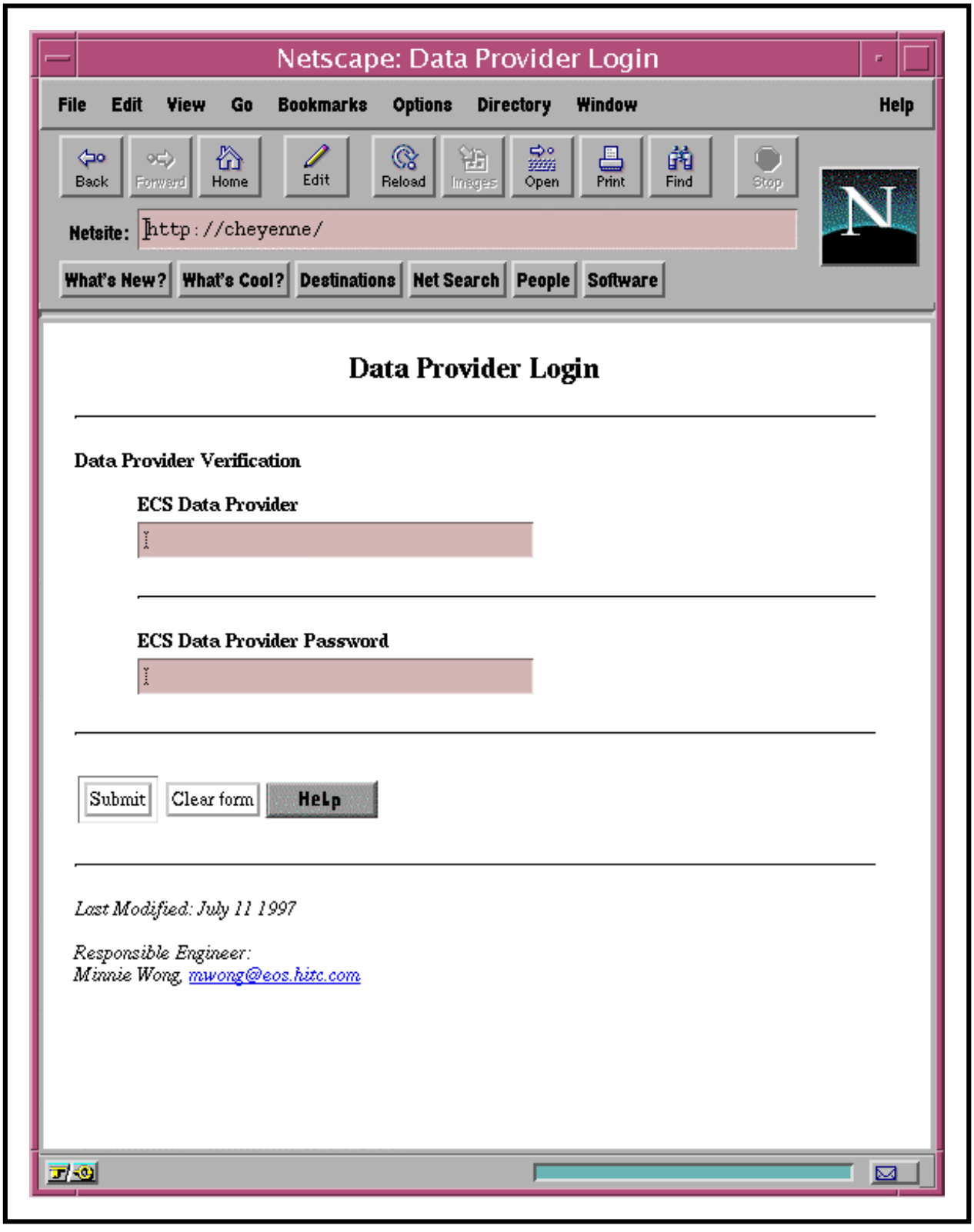

Figure 16. Interactive Ingest: Data Provider Login

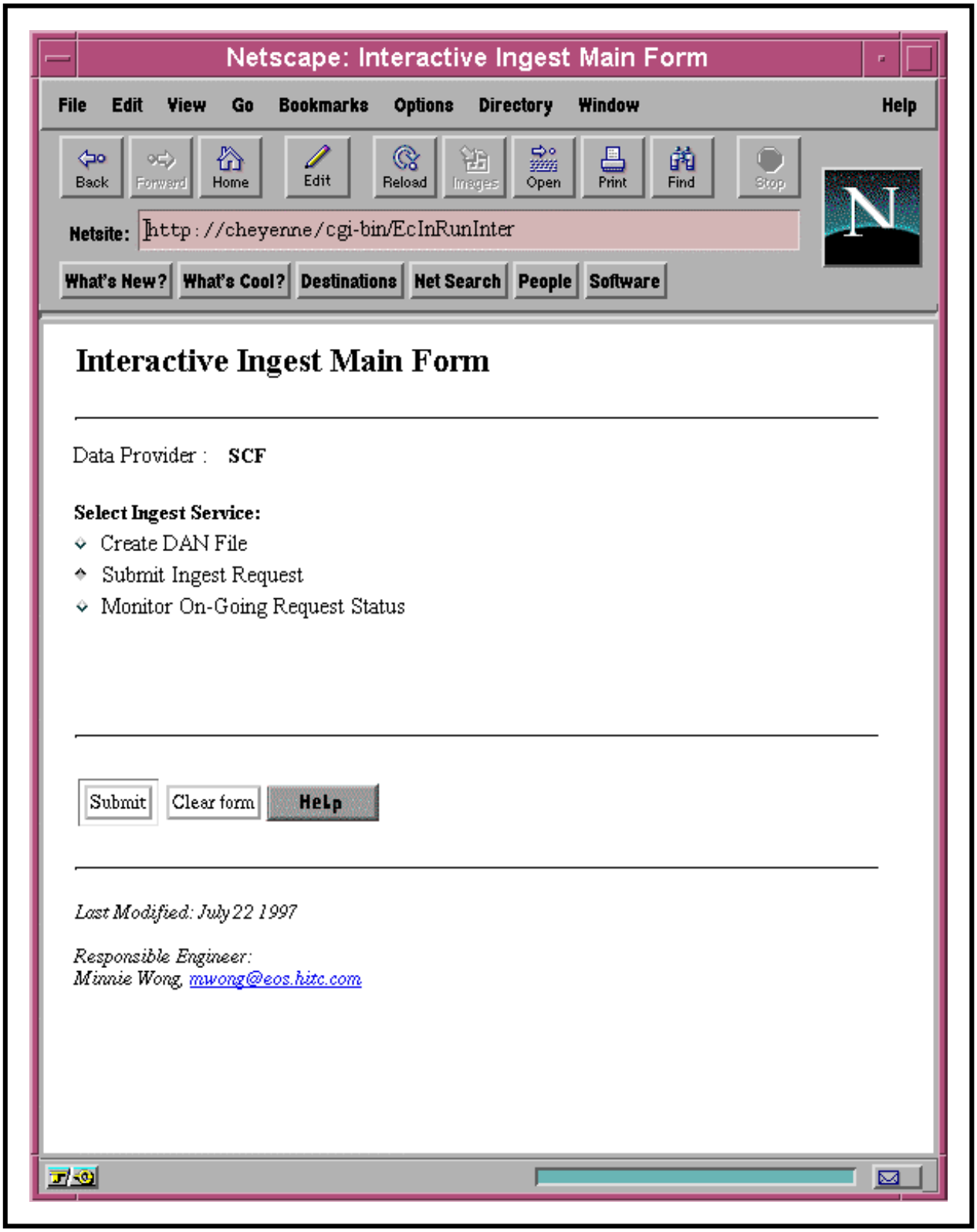

Figure 17. Interactive Ingest: Main Form

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Scanning Documents

Scanning Documents

The procedure for scanning documents describes the steps involved in operating the HP ScanJet scanner and creating a graphics (TIFF format) file. The procedure starts with the assumption that the Ingest/Distribution Technician has logged in to Windows 95 on the applicable personal computer (PC).

Scanning Documents

1 To access the TexBridge scanning software use the mouse to select **Start → Programs → TexBridge Pro 96 → TexBridge Pro 96** from the Windows 95 menu bar.

- **TexBridge Pro 96** allows scanning documents consisting of both text and tables.

2 When the **TexBridge Pro 96** screen appears, ensure that the following five (5) options are listed as follows:

Page Quality /	**Page Orientation /**	**Original Document Layout /**	**Document Recomposition /**	**Brightness**
Auto	Auto	Auto	Recompose All	Auto

3 Click on **Save Image Defer OCR** (the 8th icon to far right of the screen).

4 Load documents into the HP ScanJet feeder.

5 Click on **Go** to start the scanning process.

6 When the document has been scanned, save the document with a valid file name.

Gaining Access to Scanned Documents

After a document has been scanned, it should be checked to ensure that it has been properly scanned and saved. The procedure for gaining access to scanned documents starts with the assumption that the Ingest/Distribution Technician has logged in to Windows 95 on the applicable personal computer (PC).

1 To gain access to scanned files use the mouse to select **Start → Programs → Windows Explorer** from the Windows 95 menu bar.

- **Windows Explorer** is a directory and file management program.

2 Click on the **+** sign next to the **Program Files** folder.

3 Click on the **Tiffs** folder.

4 Open the scanned document by double-clicking on the document's file name.

5 Review the document to verify that it has been properly scanned.

6 When the review has been completed, select **File → Exit.**

Modifying Ingest Tunable Parameters and Performing File Transfers

Operator Tools Tab

There are three GUI screens on the **ECS Ingest** GUI **Operator Tools** tab. Two of the tabs are used for viewing and/or setting ingest parameters or thresholds:

- Data provider data and thresholds.
  - File Transfer Protocol (ftp) user name.
  - File Transfer Protocol (ftp) password.
  - Electronic mail (e-mail) address.
  - HTML password (for interactive ingest).
  - Cell Directory Service (CDS) entry name.
  - Server destination Universal Unique Identifier (UUID).
  - Maximum data volume that may be ingested concurrently.
  - Maximum number of ingest requests that may be processed concurrently.
  - Priority for ingest processing.
  - "Notify" parameters (essential data for providing data provider notification).
    - Type.
    - ftp node.
    - ftp directory.
    - ftp username.
    - ftp password.
- System thresholds.
  - Maximum data volume to be ingested concurrently.
  - Maximum number of ingest requests that may be processed concurrently.
  - Communication retry count.
  - Communication retry interval.
  - Monitor time.

– Screen update time.

The third GUI screen on the **Operator Tools** tab allows the Ingest/Distribution Technician to transfer requested files to optional remote sites.

External Data Provider Data and Thresholds

Figure 18 shows the screen for modifying data provider thresholds. The screen shown in Figure 18 is used for modifying external data provider/interactive user information. It has the following uses:

- Accommodate changes in data provider information (e.g., e-mail address) changes.
- Assist the Ingest/Distribution Technician in managing the ingest processing stream.

For example, the external data provider volume threshold and request threshold define the size and number of concurrent requests that are allowed from a data provider before the system notifies the Ingest/Distribution Technician of the fact that the data provider in question is taking up a significant portion of the ingest processing capacity. Although these thresholds will normally be left high so that requests are processed without restriction, there may be a time when it is desirable to lower those thresholds (e.g., to accommodate another data provider's requests). The Ingest/Distribution Technician might at the same time reduce the priority with which the data provider's requests are to be processed. For example, the Ingest GUI could be used to modify the EDOS precedence in the ingest processing stream as follows:

- Reduce the volume threshold from 20,000 megabytes to 15,000 megabytes.
- Reduce the request threshold from 100 to 75.
- Change the priority from normal to low.

To modify ingest external data provider information and parameters, use the procedure that follows. The procedure starts with the assumption that all applicable servers and the **ECS Ingest** GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Modifying External Data Provider/Interactive User Information

---

1 Click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tool** screen (Figure 18) is displayed.

2 Click on the **Modify External Data Provider/User Information** tab.

- The **Modify External Data Provider/User Information** screen (Figure 18) is displayed.

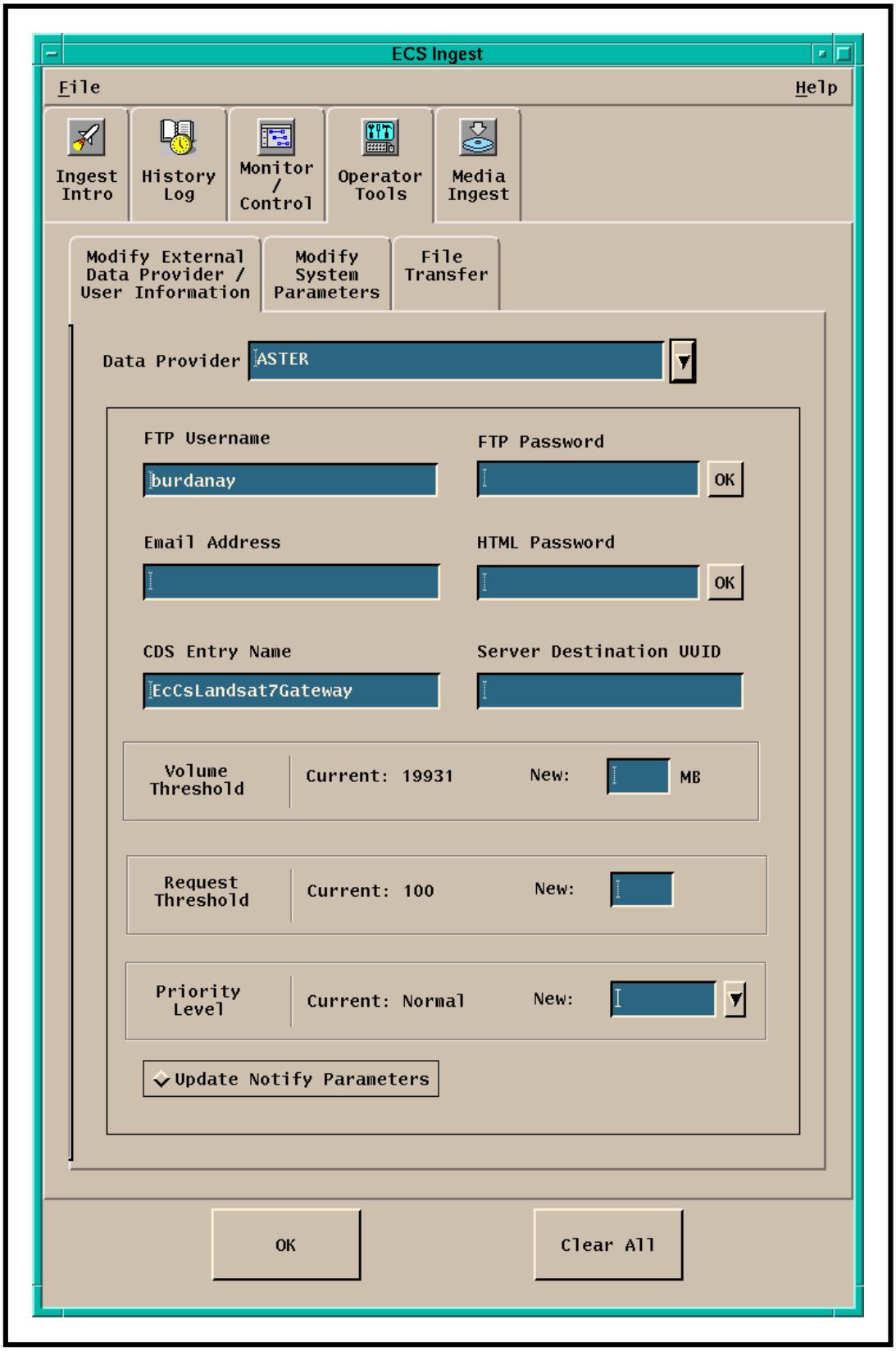

Figure 18. Ingest Data Provider Parameter Modification Screen

3 Click and hold on the option button to the right of the **Data Provider** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of designating the data provider is to type it in the **Data Provider** field.
- If the information concerning the selected Data Provider is to be modified on the basis of….
  - **FTP Username**, perform Step 4.
  - **FTP Password**, perform Steps 5 and 6.
  - **Email Address**, perform Step 7.
  - **HTML Password**, perform Steps 8 and 9.
  - **CDS Entry Name**, perform Step 10.
  - **Server Destination UUID**, perform Step 11.
  - **Volume Threshold**, perform Step 12.
  - **Request Threshold**, perform Step 13.
  - **Priority Level**, perform Step 14.
  - **Notify Parameters** (**type, ftp node**, **ftp directory**, **ftp username**, or **ftp password**), perform Steps 15 through 22 as appropriate.
- Any or all of the preceding criteria may be modified.

4 To modify the data provider's ftp username first click in the **FTP Username** field, then type the new ftp username.

NOTE: The **Tab** key may be used to move the cursor from one field to the next.

5 To modify the data provider's ftp password first click in the **FTP Password** field, then type the new ftp password.

6 Verify that the new ftp password is correct, then click the **OK** button adjacent to the **FTP Password** field.

7 To modify the data provider's e-mail address first click in the **Email Address** field, then type the new e-mail address.

8 To modify the data provider's HTML password first click in the **HTML Password** field, then type the new HTML password.

9 Verify that the new HTML password is correct, then click the **OK** button adjacent to the **HTML Password** field.

10 To modify the data provider's CDS entry name first click in the **CDS Entry Name** field, then type the new CDS entry name.

11 To modify the data provider's server destination first click in the **Server Destination UUID** field, then type the new server destination.

12 To modify the data provider's volume threshold first click in the **New:** field corresponding to **Volume Threshold**, then type the numerical value (e.g., 15000) for the new volume threshold.

- The *current* values for the volume threshold, request threshold, and priority are printed on the corresponding lines for reference purposes.

13 To modify the data provider's request threshold first click in the **New:** field corresponding to **Request Threshold**, then type the numerical value (e.g., 75) for the new request threshold.

14 To modify the data provider's priority level (e.g., from **Normal** to **Low**) click and hold on the option button to the right of the **Priority Level** field, move the mouse cursor to the desired selection (highlighting it), then release the mouse button.

- An alternative method of changing the priority level is to type the desired priority in the **Priority Level** field.

15 To update the data provider's "notify parameters" first click on the **Update Notify Parameters** button.

- The **Notify Parameters** window (Figure 19) is displayed.
- The **Notify Parameters** window provides the Ingest/Distribution Technician with a means of changing the parameters (e.g., username or password) that the Ingest Subsystem needs in order to effectively notify a data provider of ingest activities.

16 To modify the data provider's "notify type" first click in the **Notify Type** field, then type the new notify type.

17 To modify the data provider's "notify ftp node" first click in the **Notify FTP Node** field, then type the new notify ftp node.

18 To modify the data provider's "notify ftp directory" first click in the **Notify FTP Directory** field, then type the new notify ftp directory.

19 To modify the data provider's "notify ftp username" first click in the **Notify FTP Username** field, then type the new notify ftp username.

20 To modify the data provider's "notify ftp password" first click in the **Notify FTP Password** field, then type the new notify ftp password.

21 Verify that the new notify ftp password is correct, then click the **OK** button adjacent to the **Notify FTP Password** field.

22 Click on the **OK** button to save the "Notify Parameters" and dismiss the **Notify Parameters** window.

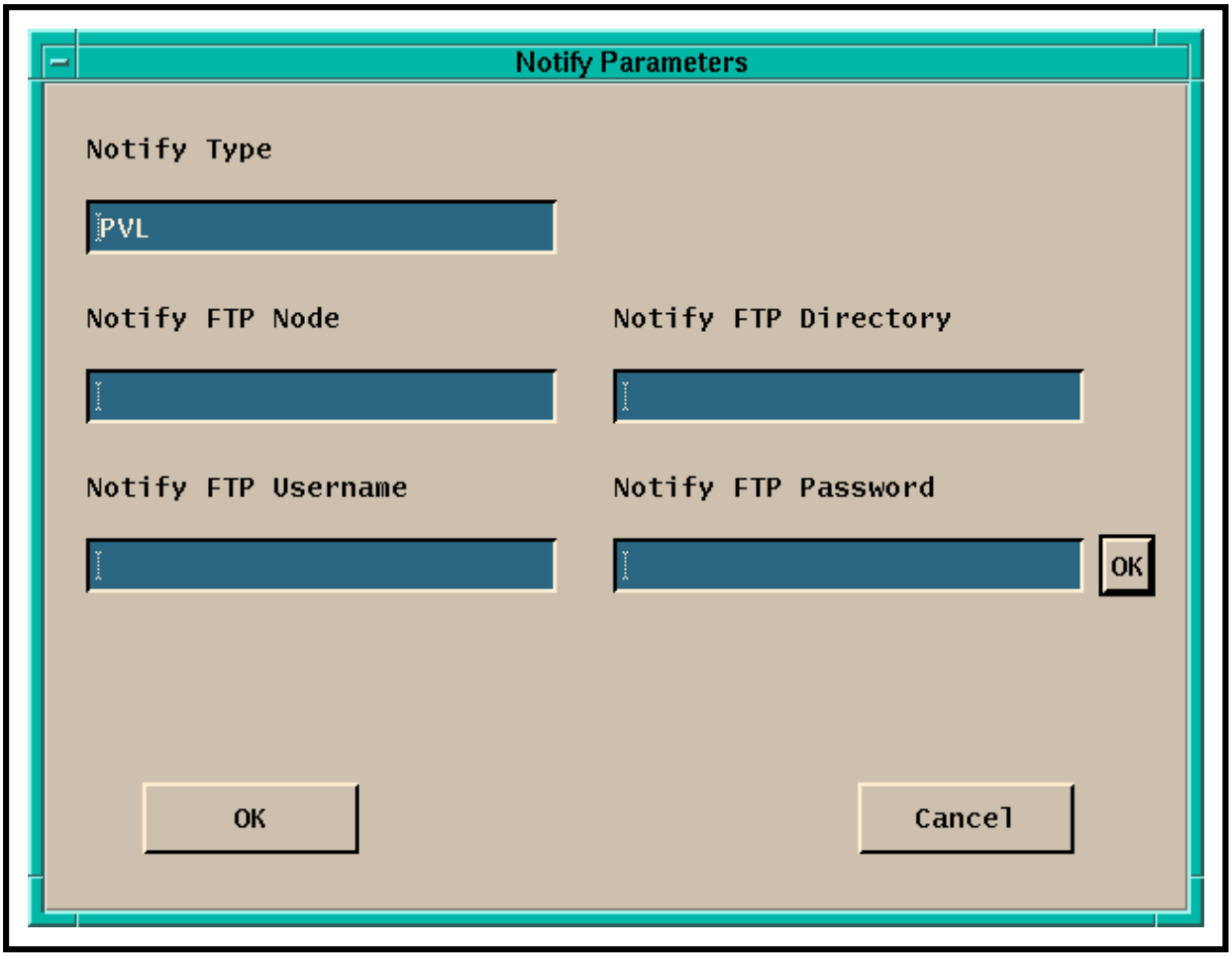

Figure 19. Notify Parameters

23 Click on the **OK** button at the bottom of the **Operator Tools: Modify External Data Provider/User Information** tab to save the changes to data provider information.

- The changes are invoked.

System Parameters

Figure 20 shows the screen for modifying system parameters. It has the following uses:

- Change the thresholds at which the system notifies the Ingest/Distribution Technician of the demands on system capacity being made by ingest processing.
- Set certain other system operating and display parameters.

Normally, the thresholds are left high so that processing proceeds without restriction and without excessive notification of its operation. If more frequent or sensitive indications are desired, however (e.g., during troubleshooting), it can be helpful to lower the thresholds. For example, it may be desirable to reduce the system volume threshold from 25,749 megabytes to 15,000 megabytes, and reduce the system request threshold from 1000 to 500.

The following two system parameters affect communications between external data providers and ECS:

- **Communication retry count**
  - The number of successive times the system tries to establish ingest communications with a data provider before registering a communications failure and moving on to the next ingest request.
  - If there is trouble with communication (or if troubleshooting is being performed), it may be useful to increase the communication retry count until the trouble is resolved.
- **Communication retry interval**
  - The time between successive attempts to establish communication.
  - It may be desirable to reduce the time interval for the same reasons as increasing the communication retry count.

An example of how the Ingest/Distribution Technician might adjust system parameters when a communication problem is suspected involves increasing the communication retry count from five (5) to nine (9), and reducing the communication retry interval from five (5) minutes to three (3) minutes.

The following two system parameters may be used to set the behavior of the system according to operator preference:

- **Monitor time**
  - The amount of time that information about a completed ingest transaction remains available on the Monitor/Control screen after its completion.
  - During a time when the system is operating normally and ingest activity is heavy, it may be better to set a relatively short interval so excess items are removed from the monitoring display fairly quickly.

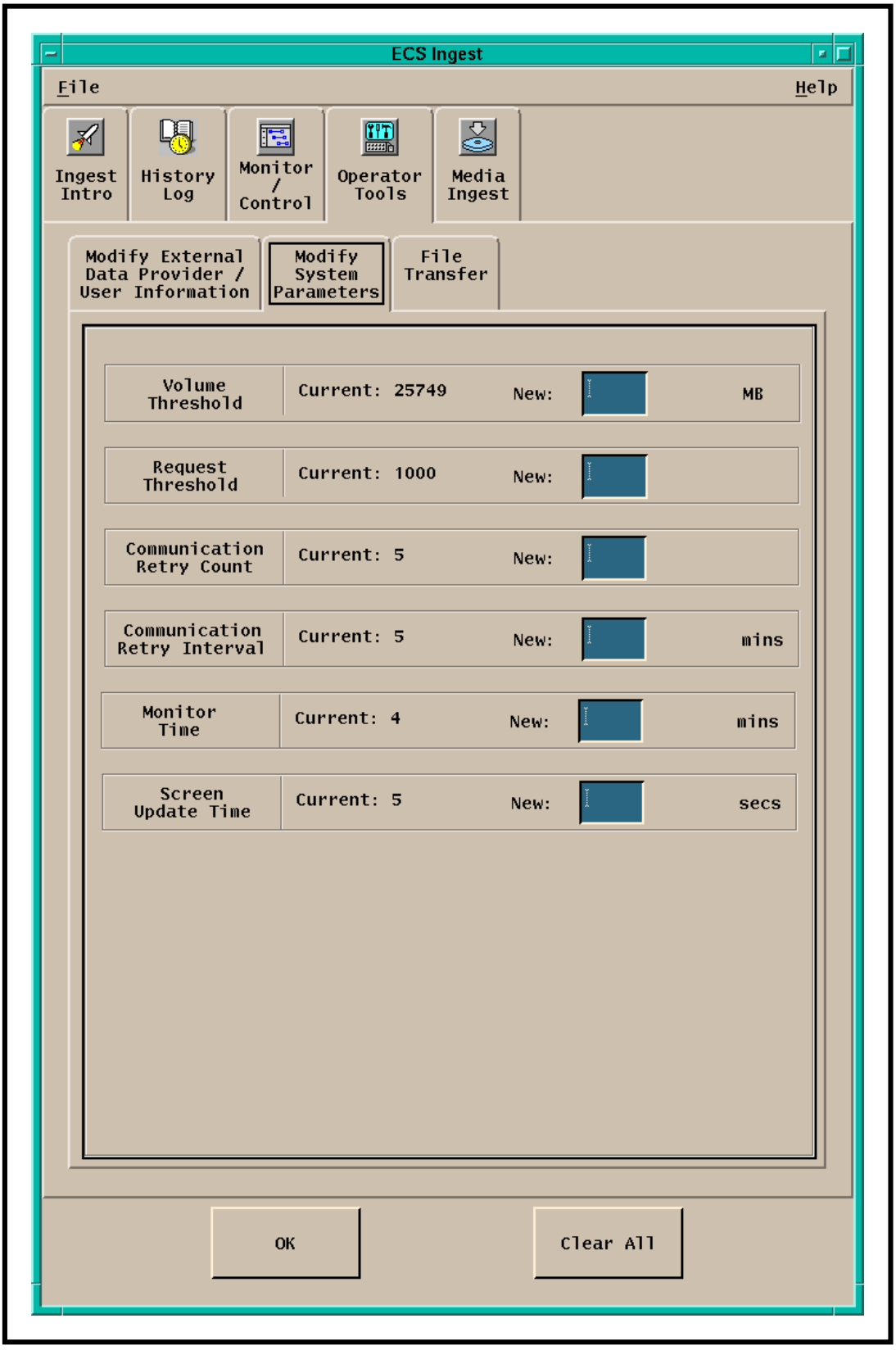

Figure 20. Ingest System Parameter Modification Screen

- If information is needed about items that have been removed from the Monitor/Control screen, it can be obtained using the History Log.

- **Screen Update Time**
  - The amount of time between automatic data updates on the Monitor/Control screen.
  - Screen updates require system processing, and this interval is normally left set at no less than five (5) seconds.
  - During troubleshooting, it may be useful to obtain more frequent updates by reducing the time interval.

Use the procedure that follows to modify Ingest Subsystem parameters. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Modifying System Parameters

---

1 Click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tools** screen (Figure 18) is displayed.

2 Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 20) is displayed.
- If the system parameters to be modified involve….
  - **Volume Threshold**, perform Step 3.
  - **Request Threshold**, perform Step 4.
  - **Communication Retry Count**, perform Step 5.
  - **Communication Retry Interval**, perform Step 6.
  - **Monitor Time**, perform Step 7.
  - **Screen Update Time**, perform Step 8.

3 To modify the system volume threshold first click in the **New:** field corresponding to **Volume Threshold**, then type the numerical value (e.g., 15000) for the new volume threshold.

- The *current* values for the system parameters (i.e., volume threshold, request threshold, etc.) are printed on the corresponding lines for reference purposes.

NOTE: The **Tab** key may be used to move the cursor from one field to the next.

4 To modify the system request threshold first click in the **New:** field corresponding to **Request Threshold**, then type the numerical value (e.g., 500) for the new request threshold.

5 To modify the system communication retry count first click in the **New:** field corresponding to **Communication Retry Count**, then type the numerical value (e.g., 9) for the new communication retry count.

6 To modify the system communication retry interval first click in the **New:** field corresponding to **Communication Retry Interval**, then type the numerical value (e.g., 3) for the new communication retry interval.

7 To modify the system monitor time first click in the **New:** field corresponding to **Monitor Time**, then type the numerical value (e.g., 3) for the new monitor time.

8 To modify the system screen update time first click in the **New:** field corresponding to **Screen Update Time**, then type the numerical value (e.g., 4) for the new screen update time.

9 Click on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

File Transfer

The **File Transfer** tool allows the Ingest/Distribution Technician to transfer files to the science community. The file transfer tool allows the Ingest/Distribution Technician to build a System Monitoring and Coordination Center (SMC) History File or select any file to be transferred from a specified point of origin to a destination desired by the user.

To transfer files use the procedure that follows. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Ingest Intro** screen (Figure 7) is being displayed.

Transferring Files

---

1 Click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tool** screen (Figure 18) is displayed.

2 Click on the **File Transfer** tab.

- The **File Transfer** screen (Figure 21) is displayed.

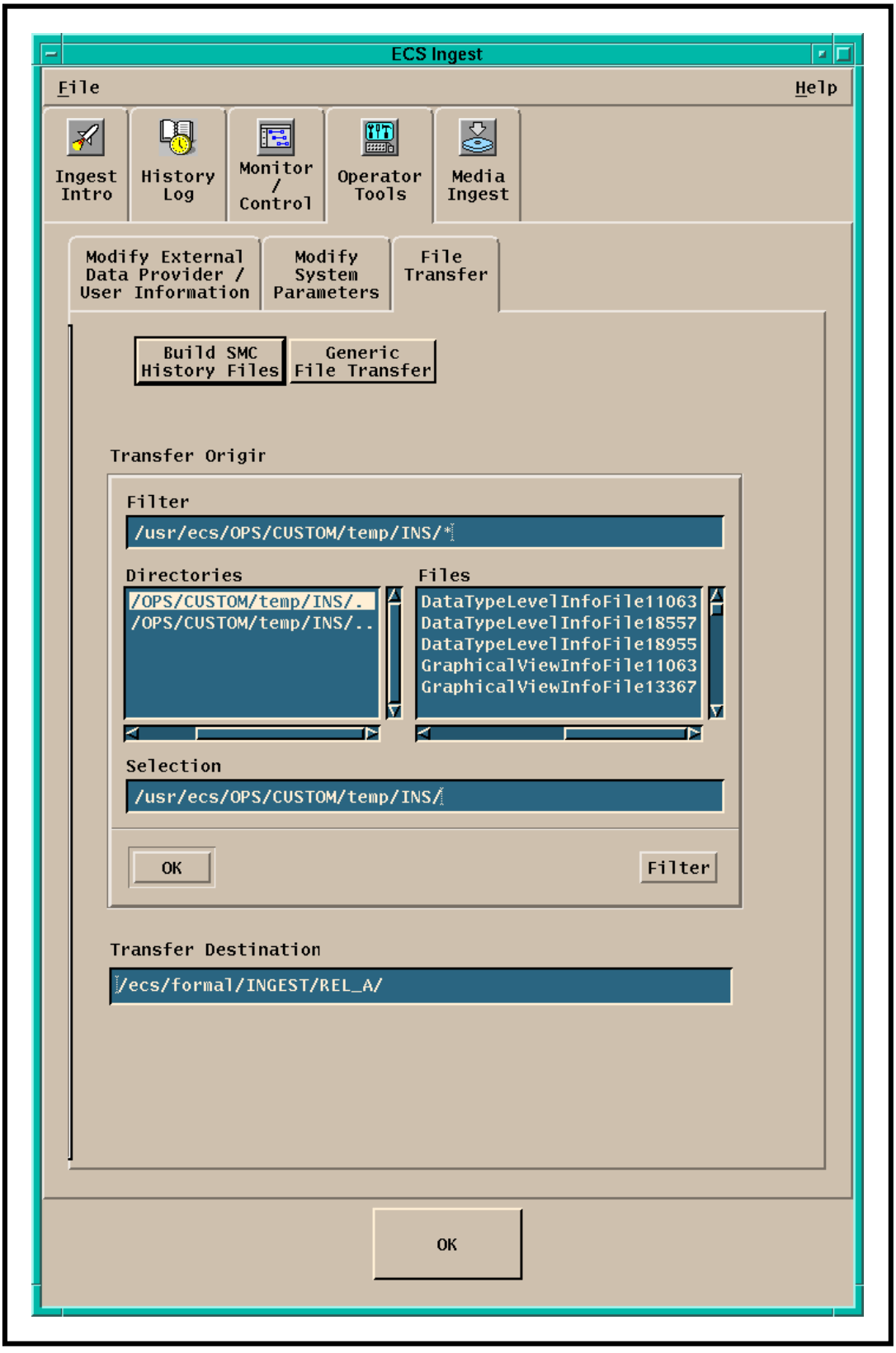

Figure 21. Ingest File Transfer Screen

3 Click on either the **Build SMC History Files** or the **Generic File Transfer** button as applicable.

- **Build SMC History Files** creates said file(s) for operator transfer.
- **Generic File Transfer** allows any type of directory or file to be transferred.

4 Verify that the path in the **Filter** field (in the **Transfer Origin** box) is appropriate for searching for the file to be transferred.

- If the path in the **Filter** field is **not** appropriate for searching for the file to be transferred, first click in the **Filter** field, then type the correct path.
- Ensure that the path in the **Filter** field ends with a slash and an asterisk (**/*****); otherwise, no files will be listed.

5 Click on the **Filter** button.

- A list of subdirectories in the last directory shown in the **Filter** field is displayed in the **Directories** field.
- A list of files in the last directory shown in the **Filter** field is displayed in the **Files** field.

6 If the file to be transferred is not listed in the **Files** field but may be in one of the subdirectories listed in the **Directories** field, select (by clicking on the desired entry to highlight it) the subdirectory where the file may be located.

7 Click on the **Filter** button.

- The path shown in the **Filter** field is modified to include the selected subdirectory.
- A list of subdirectories in the last directory shown in the **Filter** field is displayed in the **Directories** field.
- A list of files in the last directory shown in the **Filter** field is displayed in the **Files** field.

8 Repeat Steps 6 and 7 as necessary until the file to be transferred is listed in the **Files** field.

9 In the **Files** field select (by clicking on the desired entry to highlight it) the file to be transferred.

- The highlighted file is entered into the **Selection** field.

10 Click on the **OK** button in the **Transfer Origin** box.

11 Verify that the file to be transferred (including the correct path to the file) is displayed in the **Selection** field.

- Either repeat the Steps 4 through 10 as necessary to display the file to be transferred in the **Selection** field or click in the **Selection** field and type the correct path and file name of the file to be transferred.

12 Click in the **Transfer Destination** field, then type ***hostname*/*path*** (e.g., g0drg01/usr/ecs/OPS/CUSTOM/data) to the directory/file where the file is to be transferred.

13 Click on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.

- The file is transferred.

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Troubleshooting Ingest Problems

Trouble Symptoms

Troubleshooting is a process of identifying the source of problems on the basis of observed trouble symptoms. One common source of problems involves the reliance on messages or data from other subsystems. Like many other operational areas in ECS, ingest has interfaces with many other subsystems. Consequently, problems with ingest can be traced to either the Ingest Subsystem or one of many other ECS subsystems, including (but not necessarily limited to) those in the following list:

- Data Server Subsystem (DSS).
- Interoperability Subsystem (IOS).
- Communications Subsystem (CSS).
- System Management Subsystem (MSS).

However, unlike many other operational areas in ECS ingest has interfaces with external data providers. Consequently, some ingest problems can be traced to mistakes in the delivery records furnished by the data providers or errors in transmission of the data.

Table 1 describes actions to be taken in response to some common ingest problems. If the problem cannot be identified and fixed without help within a reasonable period of time, the appropriate response is to call the help desk or submit a trouble ticket in accordance with site Problem Management policy.

Table 1. Troubleshooting Ingest Problems

Symptom	Response
Unable to log in to any host (e.g., Operations Workstation, g0acs02).	Check with the Operations Controller/System Administrator to ensure that the host is “up."
GUI not displayed when the start-up script has been properly invoked.	1. Ensure that the DISPLAY variable was set properly. 2. Ensure that the xhost command was given on the initial login host. [For detailed instructions refer to the procedure for **Launching the Ingest GUI** (previous section of this lesson).]

Table 1. Troubleshooting Ingest Problems

Symptom	Response
Message received indicating a data ingest failure.	1. Ensure (e.g., using ECS Assistant) that the necessary hosts and servers (listed in Table 2) are "up." 2. If hosts/servers have gone down, notify the Operations Controller/System Administrator to have servers brought back up using HP OpenView. 3. If hosts/servers are all "up," refer to the procedure for **Recovering from a Data Ingest Failure** (subsequent section of this lesson).
Other problems.	Check the log files (e.g., EcInReqMgr.ALOG, EcInAuto.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG) in the /usr/ecs/*MODE*/CUSTOM/logs directory of the relevant host(s) for error messages. [For detailed instructions refer to the procedure for **Checking Log Files** (subsequent section of this lesson).]

Table 2. Hosts, Servers, Clients and Other Software Relevant to Ingest

HOST	SERVER/CLIENT/OTHER SOFTWARE
Ingest Server (e.g., x0icg01)	Automated Network Ingest Interface (EcInAuto) Polling Ingest Client Interface (EcInPolling) Interactive Ingest Interface (EcInInter) Ingest Request Manager (EcInReqMgr) Ingest Granule Server (EcInGran) Ingest FTP Server (EcDsStIngestFtpServer) Staging Disk Server (EcDsStStagingDiskServer)
Distribution Server (e.g., x0dis02)	8mm Server (EcDsSt8MMServer) D3 Server (EcDsStD3Server)
Working Storage (e.g., x0wkg01)	Archive Server (EcDsStArchiveServer) Staging Monitor Server (EcDsStStagingMonitorServer) Staging Disk Server (EcDsStStagingDiskServer) Ingest FTP Server (EcDsStIngestFtpServer)
SDSRV Server (e.g., x0acs03)	Science Data Server (EcDsScienceDataServer) HDF EOS Server (EcDsHdfEosServer)
Access/Process Coordinators (APC) Server (e.g., x0acg01)	Archive Server (EcDsStArchiveServer) FTP Distribution Server (EcDsStFtpDisServer) Staging Monitor Server (EcDsStStagingMonitorServer) Staging Disk Server (EcDsStStagingDiskServer) Ingest FTP Server (EcDsStIngestFtpServer) Pull Monitor Server (EcDsStPullMonitorServer)

Table 2. Hosts, Servers, Clients and Other Software Relevant to Ingest

HOST	SERVER/CLIENT/OTHER SOFTWARE
FSMS Server (e.g., x0drg01)	Archive Server (EcDsStArchiveServer) Staging Monitor Server (EcDsStStagingMonitorServer) Staging Disk Server (EcDsStStagingDiskServer)
Interface Server 01 (e.g., x0ins02)	Advertising Server (EcIoAdServer)
Interface Server 02 (e.g., x0ins01)	Subscription Server (EcSbSubServer) Event Server (EcSbEventServer) Data Dictionary (EcDmDictServer)

Recovering from a Data Ingest Failure

The automated ingest processes (including polling ingest) normally do not require intervention by the Ingest/Distribution Technician. However, when an ingest fault (error) occurs, there may be a requirement for action to recover from the error. Recovery actions may be made necessary by invalid DAN contents or other errors that result in data ingest failure.

When a fault (error) occurs, the following actions occur:

- The processing of the ingest request stops.
- A message is sent to the Ingest/Distribution Technician and the data provider with a brief description of the problem.

The Ingest/Distribution Technician may use the Ingest GUI Monitor/Control screen, the Ingest History Log (refer to the section on Ingest Status Monitoring) and/or the following log files (in the /usr/ecs/***mode***/CUSTOM/logs directory on the ingest host machine) to review the failure event:

- EcInReqMgr.ALOG (ingest request manager log).
- EcInAuto.ALOG (automated ingest log).
- EcInPolling.ALOG (polling ingest log).
- EcInGran.ALOG (granule server log).
- EcInGUI.ALOG (Ingest GUI log).

This section contains some examples of faults that are likely to occur, describes the notifications provided, and proposes operator actions in response to each fault situation. The specific recovery actions may vary due to operator preference or local DAAC policy.

When troubleshooting a data ingest failure, use the procedure that follows. The procedure starts with the assumption that all applicable servers and the Ingest GUI are currently running and the **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.

1 Upon receipt of the operator alert, use the **Monitor/Control** screen scroll bars as necessary to identify the faulty ingest request.

- When there is a data ingest failure, the system provides the following three responses:
  - Logs the error.
  - Alerts the Ingest/Distribution Technician.
  - Returns a DAA/PDRD (DAN/PDR error) or DDN/PAN (retrieval problem) to the data provider indicating the nature of the failure.
  - Note that ECS does not send PDRDs to EDOS.

2 Review the information concerning the faulty ingest request.

3 If additional information is needed, open and read the appropriate log file in the **/usr/ecs/*mode*/CUSTOM/logs** directory on the ingest host machine.

- For detailed instructions refer to the procedure for **Checking Log Files** (subsequent section of this lesson).

4 Perform the appropriate recovery procedure depending on the nature of the problem:

- **Recovering from a Faulty DAN.**
- **Recovering from Exceeding the Volume Threshold.**
- **Recovering from Exceeding the Maximum Number of Concurrent Requests.**
- **Recovering from Insufficient Disk Space.**
- **Recovering from Exceeding the Expiration Date/Time Period.**
- **Recovering from File Transfer (ftp) Error.**
- **Recovering from Processing Errors.**

Recovering from a Faulty DAN

If a DAN/PDR is invalid, ECS sends the data provider a DAA/PDRD to that effect and the data provider must submit a new DAN/PDR. The Ingest/Distribution Technician should respond to the error by contacting the data provider to give an alert that the ingest failure has occurred, provide as much information as possible about why the failure occurred, and determine whether the data ingest request will be re-initiated.

When working to recover from an invalid DAN/PDR, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.
- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from a Faulty DAN/PDR

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1 Contact (by telephone or e-mail) the data provider to discuss the following issues:

- Report the ingest failure.
- Discuss what has been discovered from reviewing the failure event data.
- Determine whether the data provider will re-initiate the data ingest request with a new DAN/PDR.

2 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Exceeding the Volume Threshold

Data Ingest may fail for reasons other than invalid DAN/PDR contents. For example, if the specified system volume threshold has been exceeded, the system sends a DDN/PAN to the Data Provider indicating that the system is full and an attempt should be retried again later.

If a data provider's volume threshold has been exceeded, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.
- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from Exceeding the Volume Threshold

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1 If it is decided to increase the system volume threshold, first click on the **Operator Tools** tab.

- The **Operator Tools** screen (Figure 18) is displayed.

2 Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 20) is displayed.

3 Click in the **New:** field corresponding to **Volume Threshold**, then type the numerical value for the new volume threshold.

- The *current* value of the volume threshold is printed on the corresponding line for reference purposes.

4 Click on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

5 Click on the **Monitor/Control** tab.

- The **Monitor/Control** screen (Figure 9) is displayed.

6 Click on the **All Requests** button.

- Alternatively, either a particular **Data Provider** or **Request ID** may be specified as described in the procedure for **Monitoring Ingest Requests**.

7 Click on the **Text View** button.

8 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Exceeding the Maximum Number of Concurrent Requests

If the specified system request threshold has been exceeded, the system sends a DDN/PAN to the Data Provider indicating that the system is full and an attempt should be retried again later. If a data provider's request threshold has been exceeded, use the procedure that follows to increase the system request threshold. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.
- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from Exceeding the Maximum Number of Concurrent Requests

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1 If it is decided to increase the system request threshold, first click on the **Operator Tools** tab.

- The **Operator Tools** screen (Figure 18) is displayed.

2 Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 20) is displayed.

3 Click in the **New:** field corresponding to **Request Threshold**, then type the numerical value for the new volume threshold.

- The *current* value of the request threshold is printed on the corresponding line for reference purposes.

4 Click on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

5 Click on the **Monitor/Control** tab.

- The **Monitor/Control** screen (Figure 9) is displayed.

6 Click on the **All Requests** button.

- Alternatively, either a particular **Data Provider** or **Request ID** may be specified as described in the procedure for **Monitoring Ingest Requests**.

7 Click on the **Text View** button.

8 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Insufficient Disk Space

After the receipt of the DAN/PDR**,** a disk space allocation is requested from the Data Server, and a time-out timer for the disk allocation is set. In the event that the Data Server has insufficient disk space, the time-out timer will expire. The Ingest Subsystem notifies the operator that the ingest request is waiting for Data Server disk allocation. Upon receipt of the alert, the Ingest/Distribution Technician must decide whether to wait for disk space to be allocated automatically or to cancel the request (as described in a previous section of the lesson).

Recovering from Exceeding the Expiration Date/Time Period

If data are unavailable but the time period during which that data were to have been made available has expired, the error is logged in the event log, and a DDN/PAN is sent to the Data Provider indicating expiration date/time exceeded. The Ingest/Distribution Technician receives an alert on his/her screen, then contacts the data provider to resolve the problem.

If a data provider's expiration date/time period has been exceeded, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.
- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from Exceeding the Expiration Date/Time Period

1 Contact (by telephone or e-mail) the data provider to discuss the following issues:

- Report the ingest failure.
- Discuss what has been discovered from reviewing the failure event data.
- Determine whether the data provider will re-initiate the data ingest request.

2 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from File Transfer (ftp) Error

After numerous unsuccessful data transfer retries, an error is logged into the event log, the Ingest/Distribution Technician is notified and a DDN/PAN is sent to the Data Provider indicating ftp failure. The Ingest/Distribution Technician reviews all current ingest requests using the **Monitor/Control** (**All Requests)** screen of the **ECS Ingest** GUI to determine whether other communication-related failures have occurred and may consult with the data provider(s) to resolve the problem.

If it is necessary to recover from a file transfer error, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.
- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

Recovering from File Transfer (ftp) Error

1 Review all current ingest requests using the Ingest GUI **Monitor/Control** (**All Requests)** screen to determine whether there are other failures that may be communication-related.

2 If there are other failures that may be communication-related, contact the DAAC Resource Manager to determine whether the ftp error is indeed communication-related and how to respond to the problem.

3 If it is decided either to increase the communication retry count or to re-initiate the ingest request, click on the Ingest GUI **Operator Tools** tab.

- The **Operator Tools** screen (Figure 18) is displayed.

4 Click on the **Modify System Parameters** tab.

- The **Modify System Parameters** screen (Figure 20) is displayed.

5 Review the current value for **Communication Retry Count**.

6 If it is decided to increase the communication retry count, follow the procedure for **Modifying System Parameters**.

7 Contact (by telephone or e-mail) the data provider to discuss the following issues:

- Report the ingest failure.
- Discuss what has been discovered from reviewing the failure event data.
- Determine whether the data provider will re-initiate the data ingest request.

8 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Recovering from Processing Errors

Ingest processing errors may require Ingest/Distribution Technician intervention. The following problems are examples of processing errors.

- **Missing Required Metadata.**
- **Unknown Data Type.**
- **Template Out of Synchronization (Sync).**
- **Unavailable File Type.**
- **Metadata Validation Error.**
- **Missing Optional Data Files.**

If it is necessary to recover from a processing error, use the procedure that follows. The procedure starts with the following assumptions:

- The Ingest GUI **Monitor/Control** (**All Requests)** screen (Figure 9) is being displayed.
- Steps 1 through 3 of the procedure for **Troubleshooting a Data Ingest Failure** have been completed.

1 If the processing error involves missing required metadata or an unknown data type, contact (by telephone or e-mail) the data provider to request the data provider to make the necessary corrections and re-initiate ingest.

2 If the processing error involves an out-of-sync template or an unavailable file type, submit a trouble ticket in accordance with the trouble ticketing procedures.

3 If the processing error involves an out-of-sync template or an unavailable file type, contact (by telephone or e-mail) the data provider to request the data provider to re-initiate ingest when the problem has been fixed.

4 If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions indicate to continue inserting the data, contact (by telephone or e-mail) the data provider to provide notification that the data have been flagged as bad.

- If the processing template instructions indicate to continue inserting the data, the following events occur:
  - The error is logged in the event log,
  - The data are flagged as bad.
  - A preprocessing failure alert for each data granule appears on the Ingest/Distribution Technician's screen.
  - A Metadata Problem Report is generated.

5 If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions require the rejection of the data, contact (by telephone or e-mail) the data provider to request the data provider to make the necessary corrections and re-initiate ingest.

- If the template instructions require the rejection of the data, the normal notices and alerts are sent, including a DDN/PAN to the external data provider indicating the preprocessing failure.

6 If the data ingest request is to be re-initiated, monitor the subsequent ingest as described in the procedure for **Monitoring Ingest Requests**.

Checking Log Files

Log files can provide indications of the following types of problems:

- DCE problems.
- Database problems.
- Lack of disk space.

The procedure for checking log files starts with the assumption that the operator has logged in to the ECS system and the appropriate host.

Checking Log Files

---

1 Access a terminal window logged in to the appropriate host.

- Operations Workstation (e.g., e0acs03, g0acs02, l0acs01, n0acs03) has the following ingest log files:
  - EcInGUI.ALOG.
- Ingest Server (e.g., e0icg01, g0icg01, l0icg01, n0icg01) host has the following ingest log files:
  - EcInReqMgr.ALOG.
  - EcInAuto.ALOG.
  - EcInPolling.ALOG.
  - EcInGran.ALOG.

2 Type **cd /usr/ecs/*MODE*/CUSTOM/logs** then press **Return/Enter**.

- Change directory to the directory containing the ingest log files (e.g., EcInReqMgr.ALOG, EcInAuto.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG).

3 Type **pg *filename*** then press Return/Enter.

- ***filename*** refers to the ingest log file to be reviewed (e.g., EcInReqMgr.ALOG, EcInAuto.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG).
- The first page of the log file is displayed.
- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **more**, **tail**) can be used to review the log file.

4 Review the log file to identify problems that have occurred.

5 Respond to problems as follows:

- DCE problems.
  - Notify the Operations Controller/System Administrator of suspected DCE problems.
- Database problems.
  - Verify that relevant database servers are running.
  - Check for lack of (or corruption of) data in the database using either a database browser or isql commands.
  - Notify the Database Administrator of suspected database problems.
- Lack of disk space.
  - Remove unnecessary files.
  - Notify the Operations Controller/System Administrator of recurring disk space problems.

Practical Exercise

Introduction

This exercise is designed to give the students practice in key aspects of ingest.

Equipment and Materials

One ECS workstation per student.

Statement of the requirements for the exercise.

Version 2.0 Operations Tools Manual for the ECS Project, 609-CD-003-002, one copy per student.

Mission Operation Procedures for the ECS Project, 611-CD-004-003, one copy per student.

Launching the Ingest GUI

The exercise involves launching the ingest GUI using UNIX commands. The exercise begins with a student acting in the role of Ingest/Distribution Technician recognizing the need to launch the ingest GUI. The student launches the ingest GUI as specified in the requirements.

Perform the following steps:

1. Log-in to the ingest client server host using secure shell.
2. Set the necessary environmental variables.
3. Start the ECS Ingest GUI in the appropriate mode.

Monitoring/Controlling Ingest Requests

The exercise involves monitoring ingest requests using the Ingest GUI Monitor/Control screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician being cued to monitor ingest requests. The requirements may include instructions to change the status of an ingest request (e.g., cancel, suspend, or resume processing of an ingest request). The student monitors ingest requests as specified in the requirements.

Perform the following steps:

1. Select the Ingest GUI Monitor/Control tab.
2. Select the appropriate set of ingest requests.
3. Select the type of view (i.e., graphical or text).
4. Observe ingest request processing.

5. Change the status of ingest requests as specified in the written or stated requirements.

Viewing the Ingest History Log

The exercise involves viewing the ingest history log using the Ingest GUI History Log screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for viewing the history log entries concerning specified ingest requests. The student selects the appropriate criteria and has the GUI display the history log as specified in the requirements.

Perform the following steps:

1. Select the Ingest GUI History Log tab.
2. Select the time period, data provider, data type, and/or final request status as specified in the requirements for the exercise.
3. Select Detailed Report or Summary Report as specified in the requirements for the exercise.
4. Display the history log report.

Verifying the Archiving of Ingested Data

The exercise involves verifying the archiving of ingested data. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for verifying the archiving of ingested data. The student determines whether the data specified in the requirements has actually been archived.

Perform the following steps:

1. Log in to the FSMS host.
2. Change directory to the directory containing the archive data.
3. Perform a long listing of directory contents.
4. Compare End Date(s)/Time(s) and Data Volume(s) for the applicable ingest request(s) shown on the Ingest GUI with the dates/times and file sizes listed for the files in the directory.

Cleaning the Polling Directories

The exercise involves cleaning the polling directories using the clean-up script. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for cleaning the polling directories using the clean-up script. The student runs the clean-up script as specified in the requirements.

Perform the following steps:

1. Log in to the ingest client host.
2. Type the command to start the clean-up script.
3. Type appropriate responses to clean-up script prompts.

Performing Media Ingest (from 8mm and/or D3 Tape)

The exercise involves ingesting data from an 8mm or D3 tape cartridge. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for performing ingest from a hard (physical) medium. The student has the Ingest Subsystem ingest data from the tape cartridge as specified in the requirements.

Perform the following steps:

1. Select the Ingest GUI Media Ingest tab.
2. Identify the type of medium.
3. Enter the stacker ID (if applicable).
4. Place the tape cartridge in a stacker slot.
5. Enter the stacker slot ID (if applicable).
6. Select the data provider.
7. Enter the media volume ID.
8. Identify the delivery record file location.
9. Initiate and monitor the data transfer.

Scanning Documents and Gaining Access to Scanned Documents

The exercise involves scanning a document and checking the file resulting from scanning to verify that the scanning has been accomplished properly. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for scanning a document. The student scans the document and checks the resulting file as specified in the requirements for the exercise.

Perform the following steps:

1. Start the scanning program.
2. Select the **Save Image Defer OCR** option.
3. Load documents into the HP ScanJet feeder.
4. Start the scanning process.
5. Save the document.

6. Start Windows Explorer.
7. Open the scanned document.
8. Review the document to verify that it has been properly scanned.

Modifying External Data Provider/Interactive User Information

The exercise involves modifying external data provider information (e.g., passwords, thresholds, or priority) using the Ingest GUI Operator Tools: Modify External Data Provider/User Information screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for modifying the information concerning an external data provider. The student makes the appropriate modifications (as specified in the requirements) to the information concerning the data provider.

Perform the following steps:

1. Select the Ingest GUI Operator Tools: Modify External Data Provider/User Information tab.
2. Select the data provider (as specified in the requirements for the exercise) whose information is to be changed.
3. Modify the data provider information as specified in the requirements for the exercise.
4. Save the changes to data provider information.

Modifying System Parameters

The exercise involves modifying Ingest operating parameters (e.g., thresholds, intervals) using the Ingest GUI Operator Tools: Modify System Parameters screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for modifying the Ingest operating parameters. The student makes the appropriate modifications (as specified in the requirements) to the Ingest operating parameters.

Perform the following steps:

1. Select the Ingest GUI Operator Tools: Modify System Parameters tab.
2. Modify the Ingest operating parameters as specified in the requirements for the exercise.
3. Save the changes to Ingest operating parameters.

Transferring Files

The exercise involves transferring files using the Ingest GUI Operator Tools: File Transfer screen. The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for transferring files. The student transfers the file(s) specified in the requirements.

Perform the following steps:

1. Select the Ingest GUI Operator Tools: File Transfer tab.
2. Select either Build SMC History Files or Generic File Transfer as specified in the requirements for the exercise.
3. Select the file(s) (as specified in the requirements for the exercise) to be transferred.
4. Enter the destination (as specified in the requirements for the exercise) of the file(s) to be transferred.
5. Initiate and monitor the file transfer.

Troubleshooting Ingest Problems

The exercise involves troubleshooting and recovering from a data ingest failure (e.g., a faulty DAN, exceeding the volume threshold, insufficient disk space, or ftp error). The exercise begins with a student acting in the role of Ingest/Distribution Technician receiving the necessary information/requirements for troubleshooting a data ingest failure. The student troubleshoots the failure specified in the requirements, identifies and recovers from the problem.

Perform the following steps:

1. Select the Ingest GUI Monitor/Control tab.
2. Identify the faulty ingest request.
3. Review the information concerning the ingest fault.
4. Perform the appropriate recovery procedure depending on the nature of the problem (as specified in the requirements for the exercise).

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Slide Presentation

Slide Presentation Description

The following slide presentation represents the slides used by the instructor during the conduct of this lesson.

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